

BARBETTE

THESAURUS
CHIRURGIAE

1676



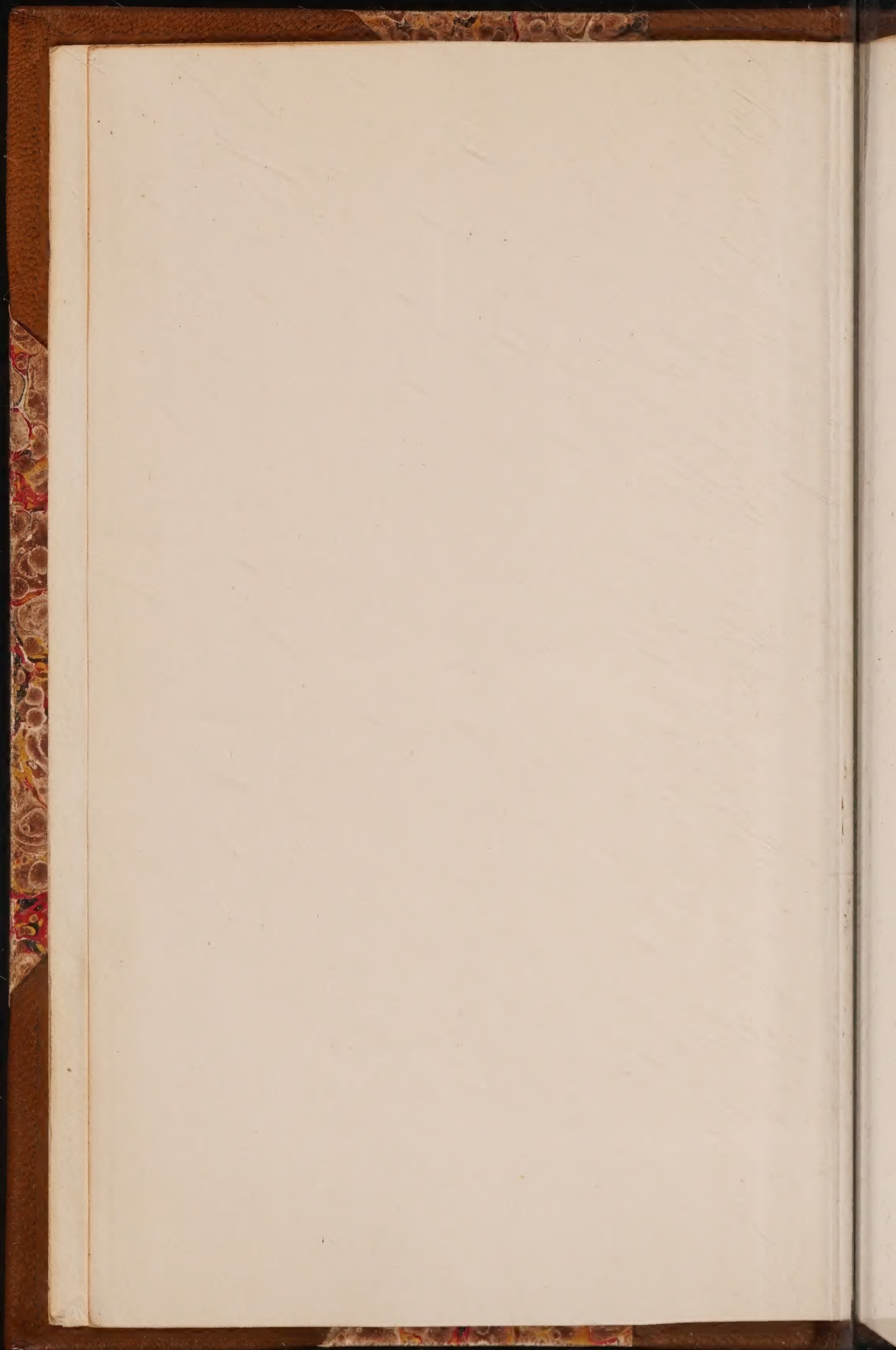


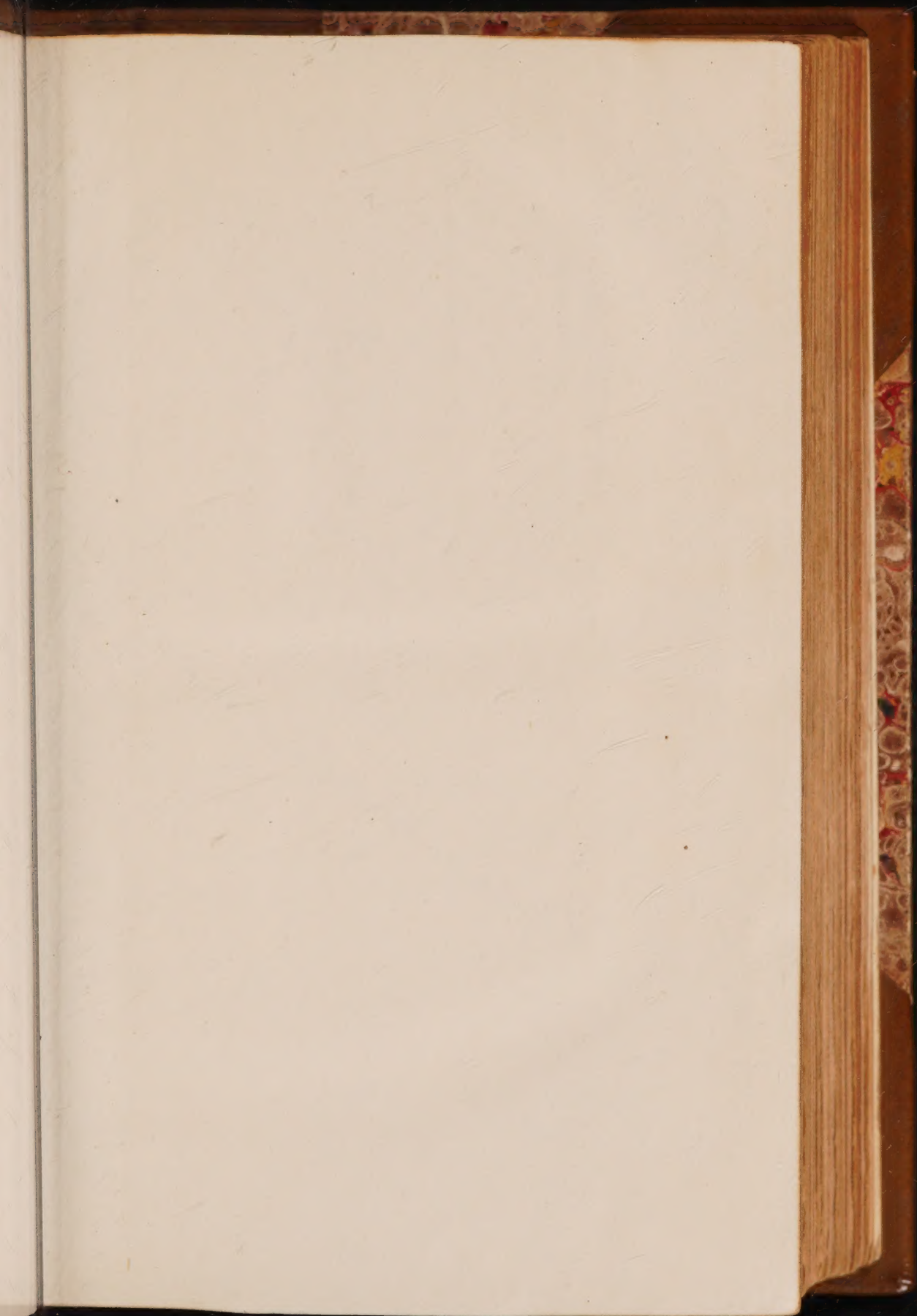


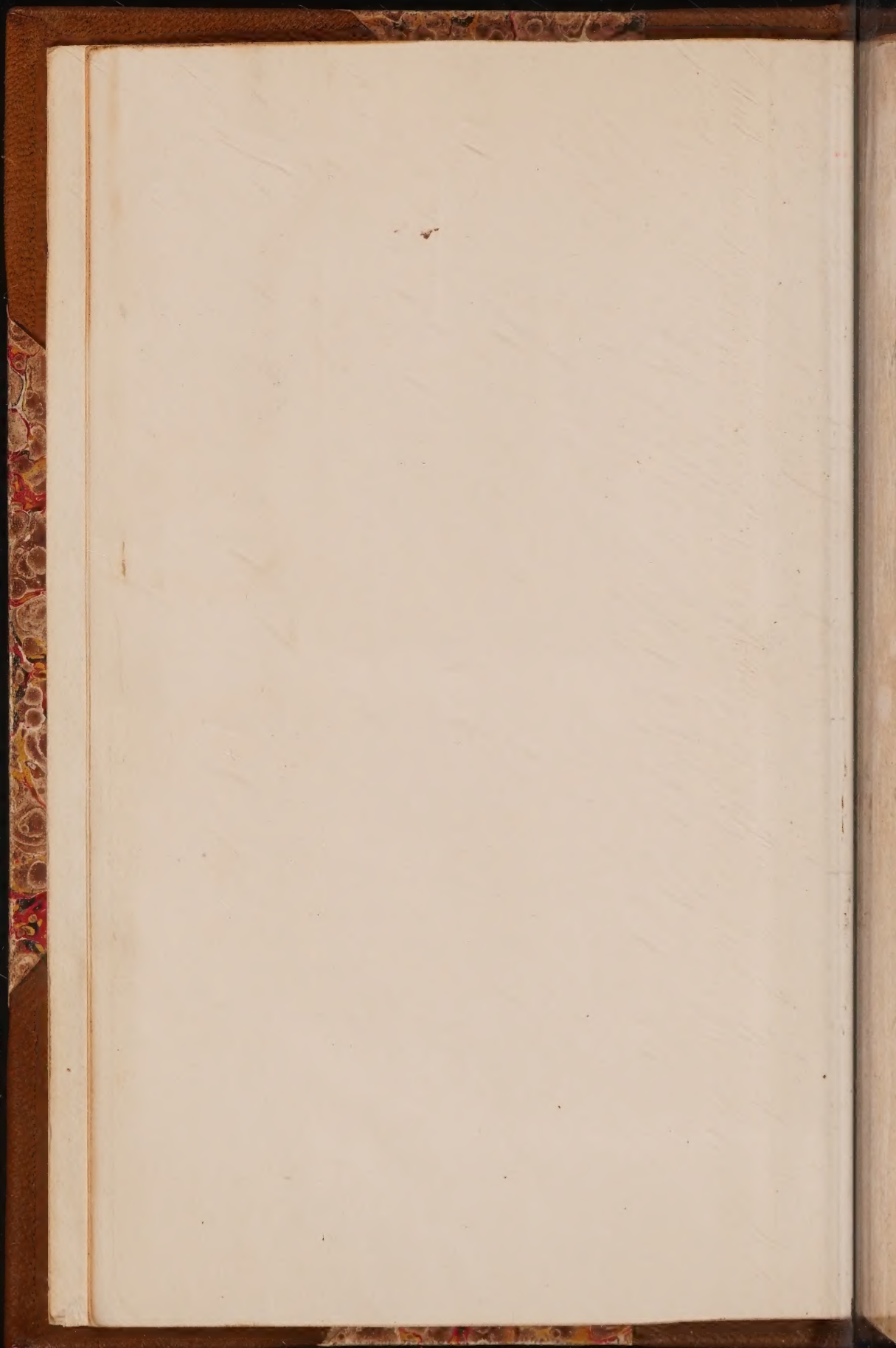
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THE
CHIRURGICAL & ANATOMICAL
VVORKS
OF
PAUL BARBETTE, M.D.
Practitioner at *Amsterdam*.

Composed according to the Doctrine of
the Circulation of the Blood, and other
new Inventions of the Moderns.

*Together with a Treatise of the PLAGUE,
Illustrated with Observations.*

Translated out of Low-Dutch into English.

THE THIRD EDITION.

To which is added the *Surgeon's Chest*,
Furnished both with *Instruments* and *Medicines*,
all useful: Illustrated with several *Copper-Plates*:
And to make it more compleat, is adjoyned a
Treatise of Diseases that for the most part attend
Camps and *Fleets*.

Written in High-Dutch by Raymundus Mindererus.

LONDON, Printed, and are to be sold by *Moses
Pitt* at the *Angel* in *S. Pauls Church-Yard*, 1676.





THE
AUTHORS PREFACE
TO THE
JUDICIOUS READER.



What should be the scope
of putting forth this
my not sufficiently Po-
lished Treatise, after
so many Excellent and
Learned Writings of *Physicians*, the
Title before will declare unto thee,
viz. That my Design was both out
of the Ancient and Modern, to ex-
tract the very Marrow, and plain-
ly to shew the best way of Curing
Diseases belonging to Chirurgery:
Therefore I have purposed not to
obtrude upon thee this or that Mans

To the Judicious Reader.

Fancy or Conceit, for Modern Practice: For who ever was so mad as to embrace the Opinion of any one Region, City or Man? Who ever, though most ingenious and judicious, equally excelled in all the Parts of his Profession? seeing it hath not pleased the Giver of all Arts to grant this perfectness to men: But I resolve to set down that Practice which Reason and Experience, after a diligent reading of the best Authors, and an exact observation of several Operations, have taught me to be the safest, convenientest and easiest, for prolixity I have purposely avoided, and used not more words than only to express the thing it self. Nevertheless I have studied to comprehend the Foundation of the Art in few Chapters. Read over all diligently, and let not what I purposely omitted,

To the Judicious Reader.

omitted, trouble thee : Great Volumns easily affright the Reader, as those that are too little betrays him : I have carefully endeavoured, what is hardly found, a mean ; and therefore I have rather in few words inserted my Observations in the very descriptions of the Diseases, then to waste thy time with a prolix discourse : To this end, that I might not repeat in particular Diseases, what I had once set down in generals.

Tumors, Wounds, and Ulcers, which neither in Cause nor Cure differ, I have reduced under one Head, contrary to what most Writers use to do, who only from the difference of the Part and Member affected, difference the Diseases, which afterwards giving them new names, they without any benefit multiply, and so

To the Judicious Reader.

they render that Art which is difficult enough of it self, much more difficult. The most diligent of Students can scarce distinguish them, who unprofitably spend much labour, and time in the Controversies of the Ancients concerning the name, whose Opinions they suppose they ought to follow to a tittle, if they will arrive at the degree of Doctor. We are the Ministers of Nature, not the slaves of those Men that describe it: We account neither them Prophets, nor their Writings sacred, neither unlawful to add, or diminish to them without the name *Heretick*.

I have set down both few, and many Medicaments; for those that I have produced, although few in number, yet of great vertue, which by vast pains, and no less charges I have found out, and which daily
Practice

To the Judicious Reader.

Practice hath confirmed to me, as the safest of all. Other Medicines seek for amongst others.

Farewell kind Reader, and whilst I am imployed about other, and better (if I can possible) writings, receive these with a grateful mind; and as I study to be profitable to thee, so also do thou endeavour always by these to help others.

The



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history of the city of London
from the time of its first
settlement to the present
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clear and concise style,
and is well illustrated
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BARBETT'S CHIRURGERY.

The First Part.

CHAP. I.

Of Manual Operations in general.



Although the word *Chirurgery* signifies all *Manual Operations* in general; yet, by reason of its pre-eminence above all the rest, it is now only given to that *Art*, which endeavours to remove the Diseases of the Body, by the assistance of the *Hands*.

'Tis true, that External Accidents require not only the help of the *Hands*, but also *Internal Means*; therefore it is no wonder for a Part of *Physick* to require the whole: *Chirurgery* being a Part, which depends upon the Body of *Physick*: But these internal Medicines we impart to you, not as *Chirurgeons*, but as *Physicians*.

The General Operations of this Art, to which all the particular ones may be reduced, are of four sorts:

1. *Synthesis*, which teacheth how to unite parts disjoyned.

B

2 *Dieresis*

2. *Diæresis*, To separate parts unnaturally joyned.
3. *Exeresis*, To remove what is superfluous.
4. *Anaplorosis*, To supply those that are wanting.

CHAP. II.

Of Synthesis or Union.

U Nion is of two sorts ; one regards the *Hard* and *Bonie* ; the other the *Soft* and *Fleshy* parts of the Body.

The *Union* of *Bones* is again twofold ; the one, setting *Bones* broken ; the other, reducing *Bones* wrenched or disjoynted. We will begin with *Fractures*.

CHAP. III.

Of the Nature, Difference, Signs, Prognosticks and Cure of *Fractures* in general.

A *Fracture* is a *Solution* of continuity in the hard parts of the Body, caused by an hard Instrument externally forced upon the part.

The *Differences* are taken, 1. From the *Manner* ; there being some transverse, which are properly called *Fractures* : others that are made according to the length of the Bone, called *Fissures* ; and others are *Comminutions*, when the Bone is broken

broken into many small parts. 2. From the *Part*, it being sometimes in the Head, sometimes in the Shoulders, Ribs, Arms, Legs, &c. 3. From the *Accidents*; there being sometimes a Wound accompanying it; at other times, a Dislocation, Inflammation, Gangrene, &c.

Cause] is, Whatever is able to break, bruise, or cut: Sometimes also a Bone corrupted by the Pox, Gout, or otherwise, hath been broken without any external force.

Signs.] A Bone being transversly or obliquely broke, by handling it, you perceive an inequality; the Patient is scarce able to move the Part affected, and sometimes that Part is shorter than the other; the Thigh, Leg or Foot being broken, the Patient cannot stand at all; but he may somewhat, though with pain, in a Dislocation: And this is the surest difference between a Fracture and a Dislocation. A *Fissure* is discerned by the thickness, pain and unevenness of the Part, and requireth the judgment of a skilful Chirurgeon. A *Comminution* is easie to be perceived, the Bone being very unequal, and here and there yielding to the fingers.

Prognosticks] A *Transverse* Fracture is more easie to cure than an *Oblique*; or when accompanied with apparent inequalities; *that*, where but one Bone is broken, than where two are, or where the bones are much shattered; *that*, which is made in the midst of the Bone, than what happens to be near the Head; and a single one, than a compound, If the Patient remain undressed beyond the seventh day, the Member is in danger of mortifying, especially if that the Part be too hard bound.

The Cure] A broken Bone requireth these four
B 2 Operations;

4 *Of Fractures in general.*

Operations; *Extention*, *Conjoyning*, *Ligature*, *Well-placing*; and withal, the application of outward and inward remedies.

Extention can hardly be performed without pain; which yet will be much less, if the Member be so extended, that the Muscles do not labour; that is to say, The Part must be so laid, that when *in health*, they could hold out longest without tiring. Sometimes the extention must be greater, sometimes lesser; which will be performed aright, if regard be had to the time of the Fracture, to the age of the Patient, and to the greatness of the Bone. A recent Fracture, a tender Patient, a small Bone, require a gentler extention: on the contrary, an old Fracture, a strong Patient, and a big Bone, a greater. The manner of extending I describe not, because it is better learnt by the frequent view of Practice, than by Reading.

After *Extention*, you are to joyn the Bones together; in the doing of which, the Muscles must not be wrested, but retain their natural position and figure.

Then the Part must be bound with a double Rowler; the *first* is to be rowled thrice about the Fracture, and then upwards. The *second* (which must be twice as long) is to be once wound about the Fracture, proceeding downwards, and then upwards again, a little higher than the first Rowler; to which you will give more firmness, if you bind some convenient Splints (of Wood, or rather of Pastboard) round about the Member.

The Ligature ought not to be too strait, lest it cause pain, and rob the Part of its nourishment; nor too loose, lest the Bones slip out of their place.

Of Fractures in general.

5

place. And unless great pain, or other symptoms require, it must not be opened before the *third* day; and at the *second* dressing, it must be bound somewhat closer; and afterwards changed but once every four, five or six days.

Lastly, The Part ought to be *well placed*, that is, softly, evenly, and a little raised. If you lay it too low, the Bone will bend outwards; if too high, it will bend inwards: Wherefore you must observe a mean.

Now, whether these four Operations have been duly performed, may be known by the ensuing Signs.

The *Extention* is well done, if the part be strait, and as long as its fellow; if it appear to outward view every where even, and a little hollow about the Fracture.

The *joyning together* is duly made, if the Bone be any thing firm, and all about the Fracture be found equal.

The *Ligature* is as it ought to be, if the Patient, as soon as he is dressed, find the pain abated; if the pain do somewhat encrease the first and second night, and there be perceived the third day, without the place of binding, a little swelling, yielding to your hands.

The Bone is *well placed*, if in the second dressing you find all even.

Before you rowl the Ligature about the Member, bathe the part with Spirit of Wine or Red Wine; or, with Oyl, Wine and Vinegar mix'd together; Or, take the White of an Egg, with some Bolus, Frankincense, Dragons Blood, &c. Or annoint it with Oyl of Roses, Mirtles, Vio-

lets, &c. or lay Plaisters on it. In Winter, the *Oxyrocœum* will do well: At all times that which follows;

Take Mastick, Frankincense, of each two drams, Aloes, Gum Tragacanth, Dragons Blood, Bole-Armonick, of each one dram; *Lapis Hematidis*, Burnt Talk, of each one dram; Whites of Eggs, and Oyl of Roses, as much as is sufficient. Make it into a Plaister.

If a *Wound* accompany the Fracture, then ought you to extend the Part first (yet somewhat gentler than in a simple Fracture) then you are to joyn the Bones together; next, to observe the Wound, to bring the Lips thereof together with Plaisters, rather than with a Needle, and to guard it with a Defensive: And lastly, Rowl the Part, and lay it conveniently.

If there be a *Cominution* or great shattering of the Bones joyned with the Wound, then endeavour with Forceps to remove the small loose Bones, leaving those to Nature that are yet any way fixed; for she will, though somewhat later, of her self throw them out; and sometimes she will unite them again to the whole. Yet, to forward her, you may assist Nature with the following Medicaments.

Take Ashes of Earth-worms, three drams; Virgins-Honey, an ounce and half; mix them, and make an Oyntment.

Or,

Take Aloes, Myrrhe, of each half a dram; Roots of Comfrey the great, Round Birthwort, of each three drams; *Euphorbium*, two drams; Turpentine and Wax, as much as is sufficient, with a little Oyl of Lillies, to make it into an Oyntment.

If

If the Bone be *bare*, cover it with its own skin and Muscles, and defend it from the Air as much as is possible.

If it be *bare* and also *started out*, endeavour to reduce it again into its place; but if it be got out too far, take away the pieces thus started out, with a Saw or Nippers.

Now these Manual Operations being well performed, the Patient must observe a good Diet; open a Vein upon occasion, and afterwards purge the Blood. In the Fractures of the lower parts, purging is not convenient; but if the Patients Belly be bound, he must take a Suppository.

In the Fractures of the upper parts, purging or administering Clysters, is oftner necessary, and may be done by the ensuing compounded or simple Medicines, which may also serve you in all other Accidents that we may describe in this whole Treatise.

Medicines purging Choler.

Rhubarb, *Cassia fistula*, yellow Myrobalans, Tamarinds, Manna, Scammony, Syrup of Sicchory, with Rhubarb, *Elect. Catholicum*, *Hierapicra*, *Lenitivum*, *Diaprunum solutivum*, & *Succo Rosarum*, *Pil. de Aloe Rosata*, *Aureæ*, *Aloephangine*, *Russi*.

Take Electuary Lenitive, two drams; *Elect.* of the Juyce of Roses, one dram; *Cassia* fresh extracted, two drams; Cream of Tartar, two scruples; Succory-water, as much as is sufficient; Spirit of Vitriol, a little. Make it into a Potion.

Of Fractures in general.

Or,

Take Rhubarb, Senna, of each, two drams; Cream of Tartar, one dram; Aniseeds, half a dram: Infuse them two hours in a sufficient quantity of Sorrel-water, let it boil a little, and to three ounces of the strained Liquor,

Add of the

Elect. of *Diaprun. Sol.* one dram, or a dram and half, and drink it.

Or,

Take of *Pilula Aurea*, *Extrakt. Catholicum*, Rhubarb, of each half a scruple. Make them into seven Pills.

Or,

Take Cream of Tartar, *Sal Prunella*, of each xij grains; Vitriolated Tartar, *Diagredium*, of each vj grains. Make it into a Powder.

Medicines that purge Phlegm.

The Roots of *Asarum*, Mechoacan white and black, Hellebore, Colocinth, Myrabolani, Belliric, Emblici, Chebuli, Agarick, Turbith, Syrup of *Diacarthamum*, Electuaries of *Hiera* with Agarick, *Diaphœnicon*, *Diacarthamum*, Confection of Hamech, Powder of Diaturbith, Pills of *Cochia*, *Fœtida* the greater, *Aggregativa*, *Lucis* the greater, *Affajeret* of *Avicen*, Troches of Agaric, Alhandal.

Take Roots of Grass, two drams; Flower de-luce, Trochiscatum Agarick, Turbith, of each one dram; Aniseeds, Fenel-seeds, of each one scruple: Let them infuse for three hours in a sufficient quantity of Parsley-water; boil it, and strain it; and to three ounces of it,

Add

Of Fractures in general.

9

Add of

Electuary of Diaphenicon, one dram and half.
Make it into a Potion.

Or,

Take Electuary of *Diacarthammum*, Confection of Hamech, of each two drams; powder of Japlo, eight grains; Cream of Tartar, two scruples, Fennel-water, as much as sufficeth. Make a Potion.

Or,

Take of Pill *Aurea*, six grains; of Pill *Cochia*, Pill *Fœtide* the greater, of each twenty grains. Make them into seven Pills, and gild them.

Or,

Take Extract of *Catholicum*, xiiij grains; of the Troches of Alhandal, one grain. Make three Pills, and gild them.

Medicines purging Melancholy.

Roots of black Helebore, Polipody, *Senna*, *Lapis Lazuli*, Syrup of Roses solutive with *Senna*, Electuaries of *Diacatholicon* lenitive. Confection of Hamech. The Powder of *Dia Senna*, Pills of *Lucis minoris*, Troches of Alhandal, Myrobalans of *India*.

Take Bark of Tamarisk, three drams; Roots of Polypody, two drams; Stæchas flowers, half a pugil; *Senna*, one dram and half; Aniseeds, half a dram; Mirobolans of *India*, one dram: Infuse them two hours in a sufficient quantity of Borage-water; boyl it, and strain it; and to four ounces of the strained Liquor,

Add

Add,

An ounce of Syrup of Roses with Senna, Spirit of Salt, as much as will give it a little acidity; and make it into a Potion.

Or,

Take Eleſtuary of *Diacatholicon*, one dram; the Eleſtuary of *Diaphœnicon*, Confection of Hammech, of each a dram and half; Cream of Tartan, two ſcruples; Powder of Jalop, ſix grains; Whey, a ſufficient quantity. Make a Potion.

Or,

Take of Pill *India*, of *Aggregativæ* the greater, of each fifteen grains: *Diagridium*, three grains; Troches of Alhandal, one grain. Make ſeven Pills, and gild them.

Note, All theſe *Receipts* are ſet down for full-grown Bodies, their quantities being to be leſſen'd according to the younger age and ſtrength of the Patient.

CHAP. IV.

Of particular Fractures of Bones.

THe Fractures of the *Skull* are divided into ſix ſeveral kinds; A *Fiffure*, *Contuſion*, *Fracture*, *Incifion*, *Puncture* and *Contra-fiffure*.

A *Fiffure* is made by a hard and blunt Inſtrument, and paſſeth ſometimes through both Tables, ſometimes through one only.

A *Contuſion* is made, when by a hard and blunt Inſtrument the *Skull* is ſo hurt, that it appears whole from without, but yet is ſever'd from the whole

whole within: Which yet in little Children may be done without a Fracture.

A *Fracture* is made, when a part of the Skull is separated from the whole.

An *Incision* is made by a cutting Instrument; where sometimes one part of the Bone is raised up and separated, as it were, but is yet fast to the rest of the Bone; sometimes a part is quite taken away; sometimes there remains a mark in the Bone according to the figure of the Instrument.

A *Puncture* is made by a pungent or thrusting Instrument, and seldom passeth through both Tables.

A *Contra-fissure* is made, when the part struck remaining whole, the opposite part is cleft.

The *Signs* are, Swimming of the Head, dimness of the Eyes, Vomiting, Bleeding at the Mouth, Nose and Ears. The Patient grows dumb, and suddenly falls to the ground: whereupon follows Raving, a Fever, Convulsions, Palsie. Any hard thing, as a piece of Wood, a Spoon, &c. being put into his Mouth, he is not at all, or hardly able to bite upon it. Here it must also be carefully enquired, in what manner, and with what Instrument he hath been hurt? Whether he be young or old, tender or strong, healthy or unhealthy? Presently after the Fall or Stroke, before the Part swells, you may sometimes feel the hurt with your fingers; and if there be a Wound with it, you may either see it, or find it out with a *Probe*.

Prognosticks.] The Fractures of the Skull, how fair soever they may look, is never without danger, but more dangerous, when both the Tables are hurt or broken; and more dangerous yet, if the

Dura

Dura Mater, and most dangerous, if the *Pia Mater* be also hurt. The more Symptoms there are, the less hope of a good event. If the Bones grow black in the beginning, that is a mortall Sign.

Cure.] If the Skin be yet whole, or the wound not large enough, make a cross incision, and divide the *Pericranium*. If under it you find a fissure, put some Ink into it, and bind up the wound. The second day, or as soon as the bleeding is ceased, scrape the Skull at once, or at several times, until the Ink; with the Fissure is altogether gone, and the Bone grow somewhat bloody, then throw the ensuing Powder upon it.

Take Dragons Blood, burnt Harts-horn, of each one dram and half; Myrrhe half a dram; Frankincense, and Orrise roots, of each a dram, Make it into a very fine Powder.

If the *Fissure* pass through both Tables, then are you to make use of Trepanning; as likewise in the *Contra-fissure*, *Fracture* and *Contusion* of the Skull, or else you will quickly lose your Patient.

The *Incision* is healed like the *Fissure*.

In the *Puncture* you must put the Trepan just in the middle, and not on the sides of the place hurt.

If you find a *Fracture* with a *Comminution*, then take out all the small loose Bones, committing to Nature those that are yet fast to the *Pericranium*, or cannot be taken away without force. And then if the *Fracture* be so large, that you can free the Brains from the coagulated or corrupted Blood, or from the pricking Bones, Trepanning will be needless; but if it should happen otherwise,

wife, you must, with great care, apply the Trepan, unless the Patient be strong, and the matter very little. The manner of Trepanning will be taught in another place.

2. In a Fracture of the Nose, what is raised, is to be pressed down; and what is pressed inward, to be raised with a *Spatule*, or other Instrument: afterwards a Pipe or Quill is to be put up, and continually kept there, till the Cure be done, and a Fracture-Plaister is to be laid on without. If the Bone be not corrupted, it will be healed in ten or twelve days.

3. A broken *Jaw-bone* is restored by ones fingers used both within and without the Mouth; and if those be too weak, then one is to draw the Head backward, and the Chirurgeon forward, and so to put it in. It is cured in twenty days.

4. The *Clavicle* being broken, there must be one to draw the Arm backward, and another to draw the Neck or Shoulder forward; the Chirurgeon himself, in the mean time, drawing upwards what was fallen down, and downwards what was raised too high. If a Ball be put into the Arm-pit, and the Elbow be pressed against the Ribs, the Operation will prove more easie. It is cured in twenty four days.

5. If the *Shoulder-Blade* be broken about the place where it is united to the *Arm*, then is the hurt for the most part incurable. If it break in the *Acromion* (which may be easily felt) then let the Arm or Shoulder be pull'd down, either with Hands or Ligatures, and in the mean time set in. If it be broken into several pieces, make an Incision, and take them out, unless they be yet fast to the *Peri-ostium*; in which case, you must leave
Nature

Nature to her self, which will either make them unite again, or throw them out. It is healed in forty dayes.

6. The *Sternum*, or Breast-bone happens either to be *broken*, and then you'll find an unevenness, which being toucht, will yield to the fingers, and cause some cracking; or to be pressed in, and then you'll feel a bending inwards, which will cause pain, a short breath, coughing and spitting blood. To restore the same, lay the Patient on his Back upon a great stone, pressing both his Shoulders downwards; then press the Ribs backward and forward, until the Bone be reduced again in its right place. This is cured in twenty days.

7. A simple Fracture of the *Ribs*, which is without any great Contusion or Inflammation of the neighbouring parts, may be healed in twenty dayes, applying the Fracture-Plaister. If the Ribs stand out, they must with ones hand be pressed in. If they bend inward, let the Patient keep in his breath, and so press the Rib outward, in the mean time, assisting him with your hand. If that succeed not, then lay a sticking Plaister upon it, and pull the same off so often, until the Rib return into its place. Cupping-glasses here are of no use.

8. A simple Fracture of the Joynts of the *Back-bone* is easily set again with ones finger, and is made whole in twenty days. But if the Marrow of the Back-bone be so hurt or pressed in, that the Arms or Legs of the Patient become lame or senseless, that he cannot retain his Urine, or his Excrements, then he seldom escapeth death. Yet you are to do your utmost; and if one or more small

small Bones be altogether loose from the *Peri ostium*, then make incision, and take them out.

9. The same is to be understood of the fracture of the *Os sacrum*, which alone hath this peculiar, that you may put your fingers into the *Anus*, and restore it to its right place.

10. The *Hip-bone* being broken, is to be set as soon as possible may be, and then it will heal in twenty four days; otherwise you may expect various accidents. But if it be fractured into many pieces, then you are forthwith, in the first dressing, to make an Incision; take out the small Splinters, and re-place those that have yet any hold-fast. Yet, by reason of the multitude of the Tendons, Muscles, Veins, Arteries and Nerves, that are spread over the whole part, such an Incision cannot be made without great danger.

11. If the *upper Bone* of the *Arm* be broken, first bend the Elbow toward the Breast, then take the lower part of that Bone close to the Elbow, pulling it straight down towards the ground, and so restore it; well observing here, that the Arm, during the whole time of Cure, must remain in that posture in which it was extended; otherwise the Fracture will, upon the least change of its posture, slip out again. Where yet 'tis to be understood, that the Chirurgeon, after the second or third dressing, as often as after that he dresseth the Patient, must stretch out his Arm strait, to the end that the Tendons which run from the Arm, and are inserted below the Elbow, shrinking by the long lying still, may not cause a troublesome stiffness. However, this shrinking of Tendons (which are by pretenders to Chirurgery,

gery, ridiculously call'd *Nerves*) may yet conveniently be cured in two or three months, if you make the Patient to carry every day some weight,, and endeavour to relax and mollifie the Tendons with Fomentations and Embrocations, abstaining from the use of any Brandy, or any other corroborating and astringent Medicines. I have always found successful the following Unguent.

Take Man's and Duck's Grease, of each one ounce; Ointment of Marsh-mallows, half an ounce; Oil of Earth-worms, white Lilly, and Camomile, of each two drams. Make an Ointment.

This *Broken Bone* is cured in forty days. The restoring of the broken Thigh-bone, hath nothing different from this.

12. The *Elbow* hath two Bones; of which,, the greater is called *Radius*, the lesser *Ulna*; both *Fociles*: The small *Focile* being broken, 'tis easie to restore it. The Cure is harder, when the great one is broken; and yet harder, when both are broken: In which case, the extention is to be made the stronger. When they be well set, and bound up, then must the hand be placed a little higher upon the Chest than the Elbow; and afterwards, every second or third day (without pain or violence) the Arm is gently to be stretched out,, to the end that the humors flowing thither, and there staying too long, may not cause a concretion in the Bones, and a stiffness in the Arm, as not extensible any more. It is cured in thirty days.

13. The *Leg* hath also two Bones, the greater called *Tibia*, and the lesser *Fibula*. Their Cure hath nothing different from the next foregoing.

14. If the *Patella*, or Knee-pan break cross-ways,

wayes, the Patient commonly remains lame. If it break long-ways, then by the Muscles that draw upwards, without any great help of the hands, it is almost of it self restored, and cured in twenty da ys.

CHAP. V.

Of the Nature, Difference, Signs, Causes, Prognosticks, and Cure of Dislocations in general.

A *Dislocation is a forcing of the Bone out of its cavity and natural place into another, hindering voluntary motion.*

The *Differences* are taken, 1. From the *manner*; for sometimes the Bone is altogether forced out of its place, and that is properly called *Luxation* or, *Dislocation*: Sometimes it is got out but a little or half, which is called *Sub-laxation*, or *Elongation*. 2. From the *Cause*; for sometimes it is from an external accident, as by *Wrestlings*, *Falls*, or *Blows*, &c. Sometimes from internal *Causes*, by the *afflux* of *Humors*.

The *Causes* are of two sorts; 1. *External*, Such as are *Falling*, *Beating*, *Running*, *Wrestling*, and vehement *extension*, as it often happens to women in *Labour*, through the *unskillfulness* of *Midwives*; yea, by a violent *stroke* or *fall*, even the *Bones* of the *Infant* in the *Womb* may be *dislocated*. 2. *Internal*, By the *afflux* of *Humors*, which falling into the *Joints*, relax and resolve the *Ligaments*, and so cause the *Bones* to slip out of their places.

The *Signs*, especially in a lean Body, are manifest enough. The Bone causeth in the place to which it is forced, a tumor or rising; and in that whence it is forced, a cavity. If there be a perfect Dislocation, the Member will be drawn up, and shorter (unless the Luxation happen by the laxity of the Ligaments, then it becomes longer) the part is painful, chiefly upon motion. In a subluxation, these Accidents are lesser, and seldom all together.

Prognosticks.] In Children and other tender Bodies, the Bones may be reduced more easily; but are kept in with more difficulty; the contrary happens in strong and full grown Persons: The Dislocation of the Head is mortal, that of the *Vertebra's* dangerous; and that which is inveterate, is hard to be cured. That which proceeds from an inward Cause, is of a slower Cure, and does easily return.

Cure.] The Bone forced out, must be reduced to its place, either by the Hands, Ligatures, or Instruments; but by which of these three it shall be performed, the Nature of the affected Part will declare. 'Tis certain, that these four Manual Operations (*Extention, Setting, Binding and Well-placing*) must here be used as well as in *Fractions* of Bones.

Extention must be made so great, that there may be a cavity between the Bone that remains well, and that which hath been forced away, to the end that in the setting, the one may not rub against the other; whence afterwards are wont to rise very grievous, and sometimes incurable Accidents.

In the *Setting*, care must be had not to wrest the Bones nor the Muscles, but to keep their natural figure.

figure. Before you proceed to *binding* up the Member, endeavour to preserve the Part from inflammation and flux of Humors, and strengthen it with the following Medicines.

A strengthening Plaister.

Take Frankincense, Mastick, Bole-armonick, Dragons-blood, of each half an ounce; fine Flower, an ounce; Roots of great Comfrey, two drams; Weathers Sewet, three ounces; white Wax, as much as sufficeth to make a Plaister.

Another,

Take Litharge, Wax, Rosin, of each three ounces; being melted over the fire, add to them, of great Comfrey, Bean-Meal, Bole-armonick steeped in Vinegar, and dried, of each three ounces; Tragacanth, two ounces. Make it into a Plaister.

If the pain, or other symptoms do not necessarily require it, you ought not to loosen the Bandage before the fifth, sixth, or seventh day, and then do it with as little motion as is possible. Lastly, Lay the Part *even*, and in such a posture, in which, when sound, it can longest remain without trouble.

If you find the Dislocation accompanied by an Inflammation, beware of extending the part, or doing ought to it before that be removed; which you are to do, first with emollient, and afterwards with discutient Medicines.

An Emollient Unguent.

Take the compound Oyntment of Marsh-Mallows,
C 2

lows, two drams; Hogs-grease, half an ounce; Oyl of white Lillies, Roses and Mirtles, as much as is sufficient to make it into a Linament.

A Discontent Plaister.

Take Colophony, Frankincense, Mastick, Pitch, of each an ounce; Cummin-seeds, Fennel-seeds, of each six drams; Wax and Oil of Dill, as much as sufficeth. Mix them, and make it into a Plaister.

CHAP. VI.

Of particular Dislocations.

1. **T**He Jaw-bone, except it be in young Children, can hardly be dislocated otherwise than forwards. Sometimes it is only dislocated in one side, and is easily restored; sometimes in both, in which case it is difficult to set, and very dangerous, and often mortal.

It is very seldom luxated from a debility of the Muscles; sometimes from the laxity of the Ligaments; for the most part, from a too wide opening of the Mouth. If it be dislocated but on one side, it stands a-skew, and is turned towards the side hurt; something is prominent, the Teeth stand not directly under one another, nor can they be brought together, so that the Mouth remains open. You must draw it toward the opposite side, and reduce it to its place, which is not hard to do; yeare by a stiff box on the Ear it hath often been restored.

If it be dislocated on both sides, then does it fall forwards, the Mouth stands open, both the *Apopyses* are prominent, the lower Teeth stand further than the upper, and the *temporal* Muscles are distended. In this case, let your Servant hold the Patient's Head firm, or hold it against a Wall, draw the Jaw-bone first downward, putting both your Thumbs in the mouth, then backward, and lastly upward.

2. The *Collar-Bone* rarely happens to be luxated, and is seldom set, but it stands somewhat out; whereby it often comes to pass, that the Patient cannot lift up his hand to his mouth, much less to his head. For restoring it, you are to lay the Patient on his back, and a stone under his Shoulder; then you must draw his Arm forward and backward, as the Dislocation requires; then press the Clavicle, so raised, down into its place.

3. The *Great Bone of the Arm* (*Adjutorium*) is never dislocated backward; seldom upwards and forwards, but for the most part downwards. A certain sign of it is, if you find a roundish hardness under the Arm-pits, and on the top of the Shoulder a hollowness, and the Arm be longer, and the Patient cannot bring his hand to his mouth. It may be reduced several wayes; but these are the most convenient, and the most sure. 1. Let a strong man hold the Patient fast about the hurt Shoulder, and let another draw the Arm downwards; then lift the upper part of the Arm into its Cavity, and the Bone will be soon restored into its place. 2. Take a strong Ladder, at the foot thereof put a Stool for the Patient to stand upon; on the uppermost

permost step, bind something round that may just fit the Arm-pits; put the Patients Arm upon it, and draw it downward, moving the Shoulder-bone to and fro; let your Servant, mean while, draw the sound Arm downward, and withal, thrust away the Stool from under the Patient, that whilst he is thus pendulous, the Shoulder-bone may be restored. 3. Lay the Arm-pits of the Patient upon the Shoulder of a strong and taller man than himself; draw the dislocated Arm downward, so that he lifting up his own Shoulder, the Patient may remain in a pendulous posture: In the mean time, press his Shoulder downward, working the Arm to and fro, until it be restored to its due place. 4. The *Glossocomium* described by *Hippocrates*, and approved by *Paracelsus*, is the most convenient of all; to be seen in the Authors themselves.

4. If the *Vertebra* of the Neck be out of joynt, the Patient is to be set upon a little low Stool, and his Shoulders pressed downward. After this, his Head is to be lifted up with both hands, turning it to and fro (yet with as little force as may be) and thus they are to be reduced. Whereupon the Patient will presently find himself at ease, and turn his head whither he pleaseth.

5. If the *Vertebra* of the Back be forced outwards, the Patient is to be laid upon his Belly; and by two Men and two Ligatures, one tied under the Arm-pits, the other about the Hips, he must be strongly stretched out, and the *Vertebra* be thrust in again. If they be forced inwards, it is mortal.

6. If the *Os sacrum* be out of joynt, put your fingers

fingers into the *Anus*, and press it from within as well as from without, into its place.

7. A *Rib* dislocated, must not remain long out of its place, lest more grievous Accidents follow. If it be removed out of its *Vertebra* upwards, then hang the Patient by his Arms over a Door, and so press it in. If it be out of joynt downward, the Patient must bend himself, laying his hands upon his Knees, and the Chirurgion in the mean time, must move to and again the displaced Rib, till it be restored to its right place. If it be dislocated inward, lay a sticking Plaister on it, and often pull it away with violence; and thus sometimes it may be restored; if not, it often proveth mortal, not being capable to be reduced by the Hands.

8. The *Cubitus* may be dislocated *forward* or *backward*, *inward* or *outward*. And sometimes the *Radius* is likewise dislocated with it, sometimes it remains in its place; which by handling the part, is easily perceived. If *Cubitus* be out *forwards*, the Arm thereby becomes shorter, and cannot be bent; the Bone stands out forwards, and behind there is a preternatural hollownes. The forced-out Bone must, as well in this, as in all other kinds of dislocation of the Elbow, be speedily restored; otherwise there will follow grievous Pain, Inflammation, Feaver, Vomiting of Choler, and sometimes Death it self. Let the Arm be extended obliquely, and so far, that one Bone may not hurt the other in the setting. If the Hands be not strong enough, then bend the dislocated Arm about a Pillar or a Bed-post, and by the help of a Bandage extend it, and pressing the Bone backward, until it be replaced. If it be dislocated *backward*, the Arm will then also be shorter, and

cannot be bent, the Bone will stand out behind ; and before there is a preternatural cavity. If it be *inward* or *outward*, there are the like signs, only the Tumor will be in the place, to which the Bone hath been forced, whereas the hollownes is there, whence it hath been forced. All these *three* dislocations may be easily cured by a convenient extension, if they be not inveterate. The same is to be understood of the *Radius*, when forced out of its place.

9. The *Hip* may be put out of joint four manner of wayes ; chiefly, *inward*, *outward* and *forward*, but seldom *backward*. If *inward*, the Leg is longer, and moveth with difficulty ; the Knee is turned outward, and the head of the Thigh-bone by the hands may be perceived in the Groin. As it is difficult to put in, so easily doth it slip out again, whereby the Part affected is wasted, and the Patient lamed. To reduce it to its place, lay the Patient upon the midst of a Bench or Table ; between his Legs put a strong stick, wound about with Linnen, and upon it let him stiffly stretch out his Leg, and the Chirurgion in the mean time with his hands set it. If outwardly dislocated, the Leg grows shorter, and the Foot is turned inwards. The Patient can then indeed bend his Leg, but hardly bring it to the ground. Though it be not set aright, yet the pain vanisheth of itself, and the Patient in time is able to go without Crutches. Lay him on a Bench or Table as above ; let the Leg be strongly extended, either with hands or Bandage, and mean while reduce it into its place. If the Hip be forced out *forward*, the Groin is swoln, and the Buttocks fallen, the Leg is neither longer nor shorter, nor cannot

cannot be bent but with trouble, and the Urine is suppressed. Though it be not set aright, yet the Patient in time will be able to go well enough upon it, though sometimes it falls out that he must somewhat trail his Leg after him. To restore it, let the Patient lie on his sound side, and strongly stretch out his Leg, press it into its former place; and in case the hand be too weak, thrust it in with your Knee. If it be dislocated *backward*, the Patient can neither stretch out, nor bend his Leg, nor is he able to bring his Heel to the ground, and if he should force himself to do so, he would fall backward; the Leg is shorter, there is a hollow-ness in the Groins, and if the Buttocks be pressed upwards, you shall find an unusual swelling. Though it be not put in, yet the pain will in time vanish, and then the Leg may be bent again, but it remains shorter and straight, nor is the Foot turned inward nor outward. Lay the Patient on his Belly, and strongly extend his Leg; mean time apprehend the Thigh-bone above the Knee; stretch it outward from off the sound Leg press the Head into its Cavity, in which yet it will not stay, if thenceforth the Patient do not keep himself very quiet.

10. The Dislocations of the *Tibia* and *Fibula* are cured after the same manner as those of the *Cubitus* and *Radius*.

11. If the *Knee-pan* be out of its place, let the Patient stand upright, and press it in again; lay on the side whence it hath been forced away, a hollow Splint, answerable to the shape of the said *Pan*, and below in the cavity of the Leg, put one or more compressing Splints, binding the whole Leg so stiff, that the Knee may not bend.

CHAP.

CHAP. VII.

Of Ruptures.

HAVING thus roughly handled the bony and hard parts of the Body, it now follows, that I treat the soft and fleshie more gently, and describe their *Synthesis* or re-union again. Therefore I begin with the broken *Peritoneum*, which sometimes gives way to the Intestines, at other times to the Cawl, and not seldom to both, to get out of their natural place into the groins or *Scrotum*, there causing a Rupture called *Enterocoele*, or *Hernia Intestinalis*, if the Guts come out; an *Epiplocele*, or *Hernia Omentalis*, if the *Omentum* or Cawl be out.

The *Peritoneum* is made up of two strong, but soft Membranes, which do so contain whatsoever is included in the Belly or lowest Cavity, that when sound, nothing can fall out. In Women, the *Os pubis* is its utmost limit: In Men, its outermost Membrane reaches further, and constitutes the first proper Coat of the Testicles. In the Groins, it comprehends the Seminal Vessels as in a Sheath, called *Processus*, or *Productio Peritonæi*. This being stretched, or enlarged, or coming to burst, is the proximate cause to the lately mentioned Ruptures. The Groins therefore are the usual places of Ruptures: But do not imagine, that the *Peritoneum* cannot be distended or burst in other places, and there to cause a Rupture. It happens sometimes above the Navel, yet seldom: *Beneath*, and *on the side* of the Navel, far above the Groins, I have not only seen it
often

often with many others, but seen it ordered and dressed just like an Abscess, the Chirurgeon giving no other reason for his mistake, than that it was not the place of Ruptures; which those that love the Art and their own Honour, may take notice of.

Most times the *Ileon* falls down, yet sometimes the other Guts come out with it, and fall into the *Scrotum*; which cannot come to pass by a simple distention of the abovesaid *process*, but that necessarily in all such great Ruptures it must be broken.

The *Causes* which make the *Peritonæum* to burst or to dilate, are Falling, Leaping, Blows, bearing of heavy Burdens, strong Vomiting or Coughing, difficult going to Stool, Winds retained; and all vehement motions of the Body.

Signs.] The Tumor is sometimes bigger, sometimes lesser, sometimes altogether vanished, but with the least motion returning. Though the Cawl or Intestines should be fallen down never so much, they may easily, without any pain be thrust in again, unless Wind or Excrement hinder it, in which case the Rupture is very painful.

If the Intestines be full of Wind, the whole belly is tense; you may hear a noise, and the Patient breaks Wind upwards and downwards. If the Excrements be grown hard, the Patient goes with difficulty to Stool, and the swelling, weight and hardness little by little increaseth. If the *Peritonæum* be only relaxed and widened, then the Tumor from little becomes bigger by degrees; but if it be broken, it suddenly descends.

Prognosticks.] In little Children, Ruptures are easily cured; in aged people, slowly or not at all, especially if the *Peritonæum* be burst. If the Intestines

stines be filled with Wind or Excrements, there follows pain; and if that be not suddenly removed, an Inflammation, Gangrene, and at last Death it self.

Cure.] Lay the Patient on his Back with his Legs on high, and a little asunder, by which it often comes to pass, that the Cawl or the Intestines return of themselves into their former place; but that not happening, press them in gently with your fingers. And if you cannot effect this, by reason of Wind or hardned Excrements, then use the following Medicines.

Where the Excrements are indurated,

Take Roots of Marsh-Mallows, two ounces; of white Lillies, one ounce; Leaves of Mallows, Violets, Pellitory of the Wall, of each half a handful; Flowers of Camomile and Melilots, of each two pugils; Bran, half a handful: Boil them in water; and to the Liquor,

Add of

Barlie and Bean-meal, of each three ounces; Linseed and Fenugrick, of each two drams; Oyl of Roses and white Lillies, Ducks-Fat, and Hens-Fat, of each an ounce. Make it into a Cataplasme.

In case this Cataplasme be not sufficient, or seems not to be so, then bathe the Patient two or three hours in Oil, sweet Milk, or Water, wherein Emollients have been boyled, not forgetting in the mean time Clysters and Purges.

Against Wind.

Take Oyl of Camomile, Rue, of each one ounce;
Oyl

Oyl of Nard and Dill, of each three drams; Spirit of Wine, two drams; a little Wax: Make it into an Oyniment.

Another.

Take Oyl of Wormwood, one ounce; Oyl of Nard and Nutmeg exprest, of each half an ounce; Oyl of Mace and Carraways distilled, of each one dram; Malmsey, an ounce and half: Boil it a little, then add to it as much Wax as is sufficient to make it into an Ointment.

Inwardly use the seeds of Annise, Fennel, Carraways, and other Medicines dispelling Wind, which also are to be mixt in the peculiar Clysters requisite to this purpose.

Also the Cummin-Plaister, used by some, may here do good service.

Or,

Take the Styptick Plaister of *Crollius*, Gum-Caranna, Tacamahac, of each half a dram; *Ol. Philosophorum*, and Carraways distilled, of each an ounce: Make it into a Plaister.

These impediments being thus removed, and the Cawl or Intestines reduced to their place, you must then with convenient Bands or Trusses so long keep them in, until the burst *Peritoneum* be so firmly grown, either together again, or to the Muscles of the Belly, that nothing can fall out of it any more. And this you will the sooner obtain, if you outwardly lay on it the following Plaister, and inwardly assist Nature with appropriated Medicines. But here remember, that in old Ruptures, and aged People, the edges of the burst *Peritoneum* are sometimes callous, that how fitly soever they are brought together, yet they can never grow together; and in that case Bands must
do

do the best; but in young Children they easily grow together; and here Trusses are better than the best Bands: Those that are not acquainted with them, must consult those that are

A Plaister for a Rupture.

Take Roots of the great Comfrey, Bistort, of each an ounce and half; Round Birthwort, two drams; Galls, Cypress Nuts, Pomegranate Rinds, of each one dram and half; Flowers of Balauftians, red Roses, Oak Leaves, of each half a dram; Aloes, Dragons Blood, Acacia, Earth-worms dried, Frankincense, Mastick, Myrrhe, Sarcocols, Mummy, of each one dram; Pitch, Colophony, Burnt Talk, of each two drams; Lytharge, Bole-Armonick, *Lap. Hematidis*, prepared Steel, of each one scruple; Venice Turpentine, as much as is sufficient to make a Plaister.

An Apozem, that the Patient may take five ounces two or three times a day.

Take Osmund Royal, Rupture-wort, of each one handful; Roots of the great Comfrey, Bistort, of each one ounce and half; St. Johns-wort Flowers, one handful; Aniseeds, two drams; Boyl them in Red Wine, and to a pint and half of the strained Liquor,

Add,

Of the Syrup of Comfrey of *Fernelius*, two ounces: Make it an Apozem.

Pills

*Pills that the Patient may take five or six of,
mornings and evenings.*

Take Mummy, one dram ; Galbanum dissolv'd in Vinegar, two drams ; Myrrhe, Filings of Steel, dried Hares-Dung, of each half a dram ; Powder of Earth-Worms, two scruples : Make them into Pills about the bigness of a great Pease.

If by a Wound, the Cawl or Intestines come out, you are to endeavour to put them in again, before they lose their natural warmth or colour by the Air, otherwise there will remain but small hopes of recovery.

If the Intestines be wounded, then with a waxed Thread stitch the Lips together, and with a gentle hand return it into the Body ; as also the *Omentum* slipt out, unless it should have lost its natural colour and warmth ; in which case, you must tie it in the place where it is sound, cutting off the part that is putrid, and reduce it into the Belly, leaving the Thread hanging out of the Wound, that after suppuration, it may be conveniently fetcht out.

And then you must stitch together the Wound of the Belly and the *Peritoneum*, which is to be done after this manner ; Take a Needle, thred it with a waxen Thread, thrust it from without through the Skin and Muscles unto the very *Peritoneum* ; leaving it on this side untoucht, but lay hold on it on the other side ; pierce it through, and the Muscles and the Skin also, drawing the Lips together ; then passing over the space of an inch, thrust in the Needle on the same side again, on which you drew it out last, through the Skin and Muscles,

Muscles, leaving again the *Peritoneum* on the same side untoucht, but holding it on the other side, thrust it through together with the Skin and Muscles, and so on: Then seeing that by reason of the continual motion of the Belly, your stitches may easily be undone, the rather, because the haste, sometimes here to be used, will not permit to make them with exactness, it is always necessary to apply to the Wound a sticking-plaster.

Among these Ruptures is to be reckoned the *Navel-rupture* (called *Exomphalos*, or *Hernia Umbilicalis*) which proceeds from the same cause, and is cured by the same means: Only you are here to observe, that upon the Plaister, you must put Bolsters of Leather, or other hard things, and this according to the bigness of the Rupture, that by this means it may be sufficiently and perfectly kept in.

It is worthy noting that the *Peritoneum* seldom bursts in this part. I have divers times found and shewed in dissected Bodies, that the Navil, together with the Intestine following, stood out bigger than a mans Head, insomuch that the right Muscles of the Belly were pressed to the side, and severed from one another; and yet was the *Peritoneum* but stretched, and no where broken.

These are the simple and compounded Ruptures, that are commonly described; but *Practice* shews us many others, not mentioned by Writers. For, *Experience* hath taught me, that the *Peritoneum* may burst in the back-part, and there cause a Rupture. We also find, that the *Processus Peritonæi* near to the Groins, may come

so to be lacerated, that the Guts press not into the *Scrotum*, but between the Skin and Muscles falls down toward the Thigh. Besides, we have more than once found, that the *Vas deferens* was fallen twisted into the *Scrotum*; and had there made a Rupture; which happening, it may with the Hands be easily reduced, yea, goes in of it self by lying backward, without any further inconvenience.

The manner of cure hath nothing peculiar in it self, but that you contrive such Bands that may reduce the parts fallen out into their right place without prejudicing the sound ones.

Among these Ruptures are commonly reckoned divers *Swellings*, that belong to other Chapters; where also we intend to describe them. But to comply with young Students, I shall here enumerate those that in the modern Practice do occur; Namely,

1. *Entero-cele, Hernia Intestinalis*, or the falling down of the Guts into the Groin.
2. *Epiplo-cele, Hernia Omentalis*, or the falling down of the Cawl.
3. *Omphalo cele, Hernia Umbilicalis*, or the Rupture of the Navil.
4. *Pneumato cele, Hernia Ventosa*, or the Wind-Rupture.
5. *Hydro-cele, Hernia Aquosa*, Water-Rupture.
6. *Bubono-cele*, Swelling of the Glanduls in the Groin.
7. *Cirso-cele*, a Swelling of the Seminal Vessels in the *Scrotum*.
8. *Hernia Veneris*, an hardening of the Testicles by an impure *Concubitus*.
9. *Hernia Humoralis*, a Repletion of the Testicles with unnatural Humores

D

10. *Hernia*

10. *Hernia Carnosa*, a fleshy Rupture.
11. *Broncho-cele*, *Hernia Gutturis*, a swelling in the Throat.
12. *Spermato-cele*, figuratively so called by me, when the *Vas deferens* falls twisted into the *Scrotum*.

CHAP. VIII.

Of the falling down of the Matrix.

THe *Matrix* does not easily fall down by Relaxation, much less by Laceration of her broad Ligaments, as most Writers imagine; from hard Labour, or by an indiscreet drawing away of the *Secundine*. Others with me have seen that the bottom of the *Matrix* hath been plainly inverted in *pudendis*, so that the inward part shewed itself as the outward. We have also found (especially in those that were subject to Costiveness or Belly-ach) that the membranes of the *Pudenda* were so far stretcht out, that the unskillfull have taken it for the *Matrix* it self, and do so still. For though many Authors have dared to write that the Womb may be cut out without danger of life, seems altogether impossible to a skillful Anatomist.

To cure this Disease, lay the Patient on her back, with her Knees on high, and Legs asunder; then take a Wax-Candle of a competent thickness, mix therewith some *Castoreum* or *Assa Fœtida*, and with it gently press the Womb inward, and having fastened the Candle with a Bandage, apply

out-

outwardly to the Belly the *Emplastrum Barbarum*, or the following :

Take the Roots of Cyprus, Bistort, of each a dram ; Galls, Acacia, of each half a dram : Cypress-Nuts, Date-stones, Myrtle-Berries, of each one dram ; Pitch and Colophony, as much as sufficeth to make it into a Plaister.

Then presently enjoin the Patient to lie still, with the Legs cross, and to beware of speaking aloud, of scolding, and of whatever may occasion coughing or sneezing.

Here great care is to be had, that your Wax-Candle be not too thick, to the end that by its continual friction it may not cause *Fluorem Album*, whereby the strength of the Body would certainly come to decay. Yet because even by the greatest care and circumspection, this inconvenience will hardly be altogether or always prevented, therefore those do very well and discreetly, that long-ways perforate the Candle, and thereby give a convenient passage for the humors flowing that way.

CHAP. IX.

Of the falling down of the Fundament.

IF the Gut be sunk down, annoint it with Oyl of Rose and Myrtle, mixing a little Powder of Galls amongst it, and with your Fingers and a small Linnen-Rag, put it in. If an Inflammation hinder the reducing it, then bathe the *Anus* with these Medicines,

Take Flowers of Elder, Camomile, and St.

Johns-wort, of each a handful ; Red Roses, two pugils ; the tops of Wormwood and Melilot, of each half a handful : Boil therein Milk and Red Wine, and bathe the part.

Here especially care is to be had, that no external cold may come to the fallen out *Anus* ; for then you may sooner than you are aware of, be surprized with a Gangrene. Wherefore do your utmost to put it in again with speed ; and in the mean time, endeavour, with the above-prescribed Bathing and warm Linnen Rags, to preserve its natural heat.

There is yet another, though in appearance ridiculous, yet in reality a good way of reducing the *Gut*. With a strong hand strike five or six times the Patients Buttocks, and thereby the Muscles, called *Ani levatores*, will presently draw the *Anus* into its right place again. But before the Patient be thus chastized, take care that the *Gut* may first be annointed with Oyl of Roses, or of Myrtle.

CHAP. X.

Of the second Operation called Diæresis, or the separation of what was united together.

Hitherto we have joyned together again what had been disjoyned ; now it follows, that we separate what is united, and treat of the *second* Manual Operation, called *Diæresis*, which teacheth us the manner of *Cutting* and *Burning*, and that both in the *hard* and *soft* parts of the Body.

In

In the *soft*, the Cutting is called *Incision*. In the *hard*, it is performed four manner or wayes: By *Terebration* or *Perforation*; by *Rasion* or *Scraping*; by *Limation*, or *Filing*; by *Serration*, or *Sawing*. Burning is done either by an *Iron* (which is the *Actual* Cautery) or by *Medicaments* (called the *Potential* Cautery) as shall be declared particularly hereafter.

CHAP. XI.

Of Opening a Vein.

Bleeding (one of the greatest Remedies in the Art of Physick) is sometimes highly necessary, but sometimes so dangerous, that it ought not to be used without very urgent Causes. Here therefore I think it will be better somewhat to digress for fuller information, than to leave the unskillful in their error.

The *Blood* is the darling of Nature, by whose assistance she performeth all her Operations, and which can hardly be drawn from her without damage; yet does Art require, that those who meddle with it, being neither venturous nor timorous, but discreet and couragious, and making out of necessity a virtue, do sometimes proceed to the opening a Vein; yet for no other than these *four* following causes.

1. In a *Plethora*, or super-abundance of blood, that by this means Nature may be eased of her too heavy burden, and the innate heat preserved from suffocation.

2. For *Revulsion*-sake, when the blood and the therein mingled humors, by flowing too plentifully to this or that part, hinder the Cure: Here you are alwayes to chuse a Vein of the opposite side, and that sometimes the farthest distant, sometimes the nearest.

3. For the *derivation* or conveyance of the Blood (which is already got into the part, but is not yet altogether settled there, nor extravasated) into another place; in which case a Vein is to be opened the nearest to the part.

4. For *Refrigeration*, when the heat of the Blood is so excessive, that it cannot be allayed by cooling Medicines, or not time enough.

These limits are too narrow for some, who will needs take into those a *fifth* cause, which they make the *Corruption* of the Blood, held by them to be as great an inducement for bleeding as any of the *four* by us recited; to the end, say they, that Nature being rid of part of what is corrupt, may be the better able to correct what remains.

But I much wish, 1. That they could make this discharge without the loss of that strength which is so highly necessary. 2. That they would be present when their Patient is to bleed, and precisely tell to what degree of corruption his blood is come, that so the Chirurgion may know how much of it he is to take, and how often; forasmuch as they will not allow that bleeding is good in all sorts of the Blood's corruption, but in that only which is not gone considerably far. 3. That they would declare, why they will have cured the greater corruption by purging, and the lesser by bleeding, since that they give to the one as well as to the other (and that duly) the name of *Cacho-Chymia*. Let them

them shew, that things differing only *secundum magis & minus*, do differ in *specie*, and so require specifically different Remedies

Others proceed yet further, and shed innocent Blood in all sorts of Fevers, without any consideration of spots of the Plague, or of Poison it self, thus freeing themselves from a great deal of labour and trouble, otherwise caused to the Physitian from the variety of Fevers. But because the nature of all Poyson and Malignant Humors is continually to assault the Heart, and suddenly to prostrate the strength of the strongest persons; and since bleeding doth likewise *both*, not only diminishing strength, but also drawing the malignity toward the Heart, and driving in again, for the oppression of Nature, what she had thrown out for her relief: I do intreat and warn all the Practisers of our Art, That as they love the quiet of their Mind, and the good of their Patients, they would beware of bleeding in Pestilential and other Malignant Fevers, as also in all cases that may befall people by poyson, either inward or outward.

The *French*, *Italians*, *Spaniards* and *Portugueses* (great Blood-letters) will, I expect, tell me, that Nature, when by bleeding she hath vent, and is somewhat discharged, shall be better able to throw out the remaining evil. And this seems to be true, for the blood indeed receives Air, that the spirits may the better flie away, and is robb'd of that strength which it so necessarily wants, whereupon Nature exchangeth the Life of the Patient for death, and extorts tears from the by-standers.

Without alledging other Reasons, they ground themselves upon Experience. And it were to be wished they had that ground indeed; for we find

such Patients of theirs, who in the morning were in no danger, even after but the taking away of five or six ounces of Blood, to be cold and stiff at night. Whence it may easily be collected, what it is they call *Experience*, viz. if the Patient by chance escape death, then *Bleeding* must have the honour of it; but if he die, as for the most part, then the malignity of the Disease was the cause of it. Wherefore I alledge Experience against Experience, and praise God Almighty, that he hath vouchsafed to furnish all those, who without envy, passion, or slavish dependance upon others, will duly consider Diseases with surer means.

The more moderate sort of them would have *Bleeding* only administred in the beginning of the Disease, and before the Malignity appears outwardly. This I shall willingly allow them; 1. In very hot Countreys. 2. In a Plethorick Body. 3. If the humors flying to the head, cause any grievous symptoms there; in which case, bleeding in the Hand or Foot may be, I think, very beneficial. Otherwise those that use it in all bodies, and without distinction in these cold and moist parts, will find the ill effects of it, and be puzzled withal to give a reason for their Practice, allowable by Art; the rather, because, by their own confession, they dare not use this their Darling of Bleeding at certain times, but find themselves best in the use of Sudorificks and cooling Drinks. But enough of this.

Now how many Ounces of Blood ought to be taken at once; the degree of the Disease, and the Patients more or less strength, will indicate. And tis better too little than too much. I have never taken more from the strongest and most pletonick Person

Person under my Cure, than twelve ounces at once, chusing rather, in case of need, to let out twenty ounces at two times, than fifteen at once; of which method I have found good success.

As to the *season* of the year, and the *hour* of the day, little regard needs to be had in those Diseases, wherein bleeding cannot be long deferred without danger, as in Pleurisies, Squinancies, &c. Otherwise, the Spring and Autumn, and the Morning are best.

The Veins that are wont commonly to be opened, are these; In the Fore-head, the *Vena frontis*; in the Temples, the *Vena Temporalis*; in the Mouth, the *Vena sub-lingualis*, or *Ranularis*; in the Neck, the *Jugularis Externa*; in the Arm, the *Basilica*, under which lieth an Artery; the *Mediana*, under which lieth a Nerve, and under both of them a Tendon; and the *Cephalica*, which hath under or near it, neither Artery, Nerve nor Tendon, and therefore may safely be opened: This last hath but one small branch that runs outward to the Head, whence it hath got the name of the *Head Vein*. Without this consideration, it little matters which of these three be opened, in regard that about the Arm-pits they all acknowledge no more but one Branch. In the Hand, between the little Finger and its Neighbour, the *Salvatella*; in the Foot, the *Saphena* and *Ischiatica*.

The *manner* of bleeding is so well known, that I think it needless here to describe it: Only I could wish that some of those that let blood, would take care somewhat better to guess of the number of ounces of Blood they take from their Patients, that so we might not find 12, 16, 18, yea, 22 ounces drawn away instead of 6 or 8, that were

were prescribed. To prevent so intolerable a mistake, I would advise, that small Porringers of Tin or Copper were made, in which the number of ounces were marked; though expert Masters do not at all need them, as knowing that Blood is really weightier than it outwardly seems.

CHAP. XII.

Of the opening of Abscesses or Imposthumes.

THe Humors here and there gathered, do often cause a swelling, which Nature is not always able to dissipate, unless Art do succour her by fit means; which if fruitless, you must use suppuration, and then stay till she of her self make an opening, except there be a necessity to hasten one, or even not to stay for a perfect suppuration: As, 1. When the matter being very sharp or malign, upon which happens a corrosion of the neighbouring parts, and a corruption of the Bones, Tendons or Nerves. 2. When it may affect a nobler part. 3. When it lieth in the Joynts. 4. When it is cast out by a *Crisis*.

Before you proceed to the opening, you are to consider, whether the matter be contained *in its own proper Tunicle*, or whether it be without any *Tunicle*. If *without* any, then make your aperition with a right Line, observing the Fibres of the Muscles. *For example*; In the Head, according to the position of the Hair, long-ways; in the Eye-lids, transverse; in the Temples, the Nose, Neck, Breast, Back, Arms, Feet, Joynts, long-ways;

wayes; in the midst of the Abdomen, let it be long-wayes; in the sides of it somewhat oblique; In the Groins, transverse; but not very deep, by reason of the subjacent seminary Vessels. Alwayes beware of touching any great Vein, Artery or Nerve, though the Fibres be cut across, lest from a lesser evil there should arise a greater.

The properest place for the opening, is the most raised and softest part of the Abscess, if possible in the depending, that the purulent matter may the more conveniently be discharged: To which end also you are with a Tent so long to keep open the wound, until the part, being altogether cleansed of its preternatural Humors may return to its former Functions.

In the opening, thrust not in the Launcet too deep, nor further into the Cavity than to the matter, and as soon as you perceive *that*, draw it a little back, and turn the point upward; making your opening through the Skin so big as may afford the contained matter a free vent.

If the Abscess be included in a Tunicle, if small, make the incision long-wayes; if big, then make a double incision, that is, cross-wayes; and beware of touching the Vesicle, otherwise you must expect a foetid and almost incurable ulceration. This being well done, press out with your Fingers the Vesicle, which seldom or never sticks to the Skin, and easily follows; cut off the little Artery by which it is fed; and have a care, that not the least Particle of the Bag may remain on it, lest it gather again.

Forasmuch as in this Operation I find that Chirurgians differ in the Instrument they ought to use, some chusing the *Launcet*, others the *Potential Can-
tery*,

tery, and extol it far above the former: I think my self obliged to declare here what I judge of this matter.

The *Potential Caustery* hath this advantage, that it doth not terrifie timorous Patients, nor is painful to the tender; especially joyning with it the present and known good Remedies: For *unquenched Lime* mixed with *Holland Sope*, worketh deep enough into the flesh, yet much gentlier than the corrosive of *Ambr. Pareus*. But it hath these inconveniences:

1. That, according to the tenderness or strength of the Skin or Bodies, sometimes it eats in deeper than needs; for we have found by experience, that in some it hath eaten through the Skin and Muscles to the very cavity of the Belly; in others, irrecoverably wounded the processes of the *Peritonæum*, together with the seminal Vessels therein.

2. Commonly it spreads it self in length and breadth somewhat further than you would have it, especially if it be to be applied under the Arm-pits, in the Groin, or in the Joynts; for it no sooner grows warm, but it melts, and so spreads abroad, notwithstanding the Plaister with which the Surgeon designed to bound it.

3. There are necessarily required some hours (in some bodies more, in others less) before it can perform its operation; and this the Humor will not alwayes bear, especially if it be malign.

4. And the Scar falls not presently off; and if you would give a present vent to the Humors, you will be obliged still to make use of a Launcet. Be as circumspect as you can, I am sure, you will hardly avoid these inconveniences.

On the other hand, the *Launcet* hath this trouble,

ble, that many people are affrighted at it, and that it is painful: But the fear may be prevented by silence, and the pain is little considerable; meantime you have these advantages:

1. That with the *Launcet* the Apertion may be made as long and as deep as the Chirurgion desireth.

2. The Matter is suddenly discharged, and the Patient hath present relief.

3. The unconcocted remainder may be the sooner concocted, by assisting Nature with convenient Remedies, both inwardly and outwardly.

4. You will not be troubled with a long gleet; which if it happens, the fault is assuredly in the Chirurgion. For almost all Tumors that appear behind the Ears, in the Neck, under the Armpits, or in the Groin, spring from indurated Glandules, replete with a preternatural humor; these Glandules are all included in their own Membranes; which being toucht, either with a *Launcet*, or with Corrosive Medicines, there must needs follow a gleet (for 'tis impossible that the Glandule should be able to preserve it self, or the contained humor, its Tunicle being divided) which will continue until the whole Glandule and Tunicle are both consumed.

CHAP. XIII.

Of the Separation of Parts unnaturally joyned.

Within the *Ear* is a thin, but strong *Membrane* called the *Drum*. This being overgrown with another preternatural *Membrane*, or a *Caruncle*, the Patient loseth his hearing; which is not at all to be cured by any Manual Art, and difficultly by Medicines. But if the Cavity of the *Ear* come to be closed up with a *Membrane*, and thereby the Hearing lost, then is it to be opened with a fit Instrument, and as soon as may be, cicatrized.

That many have been born with the *Anus* imperforated, and the Intestine covered with a *Membrane*, hath been often observed; which if the *Membrane* be tender and thin, is to be opened with the Fingers; if thick, with a *Lancet*, long-ways; and afterwards kept open with a small leaden Pipe, and drying Medicines.

The *Pudenda Virginum* are sometimes also closed with a preternatural *Membrane*, which causeth most grievous Accidents, when they are grown marriageable. Sometimes the part is altogether grown together; sometimes upon an ill-treated *Ulcer*, coalescunt *Labia & Membrum illud ineptum reddunt congressui virili*. Sometimes a preternatural *Caruncle* shuts the *Os Vulvae*. The two first are to be opened long-ways with a sharp Instrument, in part wound about with linnen Rags,
and

and then cured according to Art. To the last, which causeth most difficulty, you'l need in the Operation a *Speculum Matricis*, and in the latter end of the Cure, a small Pipe, perforated throughout in length, to promote the Cicatrizing.

Here we shall take leave to speak something of the *Tongue*, not of a long and sharp one, for which I have found either none, or at least, no better remedy than contempt, patience and commiseration; but of those, that being short and tied, deprive Children, first, of sucking, afterwards of speaking: Which is easily remedied, by loosening the string of the *Tongue*, by cutting it transverse with a pair of Scissars, and anointing it afterwards with Honey of Roses three or four times a day. In the cutting, the neighbouring parts and veins must be carefully shunned; and sometimes the Nerve of the sixth pair or its Branches run so near the String, that by a deep incision they may be easily hurt, and the Patient fall into sad Accidents. Here let the Chirurgeon know, that of an hundred Children, scarce one needs this Manual Operation; and that those Midwives are as rash as ignorant, who in all new-born Babes, do forthwith dilacerate this String, whereby the sound parts being hurt, they are often deprived of their necessary sucking, and by subsequent symptoms, of their life.

CHAP. XIV.

Of the Paracentesis.

ALthough the word *Paracentesis*, signifies all Punctures, yet custom hath appropriated it solely to the opening of the Belly in a *Dropsie*, and to that of the Breast in an *Empyema*, though more to *that* than to *this*.

This Manual Operation is ancient, and full of danger; yet sometimes preserves the life of the Patient. Nature and Success have emboldened us now and then to make use of it; but Experience hath taught us, that the greatest difficulty consists herein: 1. That the parts debilitated, and deserted of their natural heat, do easily, after opening, mortify. 2. That together with the Water, issues out likewise the Spirits. 3. That the pressing water can hardly be so kept in, but it will run out in despite of the Chirurgeon; and if, the better to close the Wound, you do forcibly press in the Pipe, a Gangrene soon and easily ensueth.

Who therefore expects a good issue of this Operation, must use it only upon a Body that is not emaciated or wasted; in a *Dropsie* that is recent (or at least, when the Tumor in a short time hath risen to a great bulk) and which, upon the use of proper Remedies, would not presently be removed; in such Patients that are not molested with a Fever, or with difficulty of breathing, and where the noble parts are yet sound and uncorrupted; and in persons of a middle age, since in children and in old people it succeeds not so prosperously.

As

Barbet Chyr. Port. 11. Sept. 16.



R.W. sculp.



the parts, following so great an Evacuation, very often causeth death. The Pipe is not to be taken out, but must remain all the time of the cure in the Wound, which you must at length heal up according to Art.

For the opening of an Hydropical Belly, this is the safest as hitherto practised way, that is left us by the Ancients; but the industry of their Posterity hath invented for us a much convenienter Instrument, whereby we not only do avoid many of the above-mentioned difficulties, but also with less trouble preserve the lives of otherwise incurable Patients, freeing them from stretching, pain and trouble, according to our pleasure, or the degree of their strength.

This never enough commended *Instrument* was first of all brought out of *Italy*; by the experienced Chirurgeon of this City, Mr. *Jacob Block*, and by him put into practice, to the great benefit of many Patients.

Commonly he chuseth the place lately pointed out by us, *viz.* about three inches below the Navel, and perforates the Skin, Muscles and *Peritoneum*, unto the very Water, taking away no more at once than a quart.

That done, he draws out his Instrument again, puts nothing upon the made hole but dry Lint and a sticking Plaister, whereby he sufficiently hinders the running out, against your will, of even a drop of Water; for, upon the withdrawing of the Instrument, the open'd Skin, Muscles and *Peritoneum* are easily by their natural motion so far drawn asunder, that the Holes cannot any more exactly close upon one another.

This being once performed, we regulate our
selves

selves according to the strength of the Patient, staying two, three or more dayes, before we repeat this Operation; then either the first Orifice is to be opened, or again a new one to be made, especially if the Chirurgeon finds, that the Water may be more conveniently drawn away in another place.

In an *Hydrocele* (when the water is fallen into the *Scrotum*) the said Chirurgeon doth by this Instrument so dexterously discharge the Water out of the *Scrotum*, that the next day you shall not, or hardly be able to find where the Hole was.

The Perforation seems to me a little inconvenient; wherefore I have caused this Instrument so far to be altered, as that I make the end not to be wrought round, but sharp on both sides, Launcet-wise, by which means it may be sooner thrust through the Muscles. But then, *this* may be made of Silver, *mine* must be of Steel.

To the end that you may the better comprehend what we say, we shall represent to your view the Instrument, and the Operation it self, in the ensuing *Figures*.



Explication of the Figure.

FIG. I

- A. The Silver Pipe of Mr. *Jacob Block*, with a round point end.
- B. The little hole, through which the Water passes out of the Belly into the Pipe.
- C. The Stilet or small Wire, to clean the Pipe with, after the operation.

FIG. II.

- D. The Steel Pipe of the Author, with an end like a Launcer.
- E. The little Hole, as before.
- F. The Iron-Wire, as before.

FIG. III.

- G. The Bed on which the Patient sits.
- H. The Hydropical Person.
- I. The Pipe thrust into the Cavity of the Belly through the right Muscle, where the above-commended Chirurgeon affirms that the made Hole is sooner healed up.
- K. The Bason to receive the Water running out.
- L. The Chirurgeons or Assistants hand.

CHAP. XV.

Of the Opening of the Breast.

THere is sometimes collected in the Cavity of the Breast, a *watery* or *purulent matter*.

The *Water* gathers either by some *Lymphatick Vessels* burst, or from an unconcocted watriness of the Blood. The *purulent Matter* follows upon inflammations of the Throat, or Lungs, or a *Pleurisie*, &c.

If it be *Matter* that is collected, it is called *Empyema*; if *Water*, *Hydrops pectoris vel pulmonis*, the Dropsie of the Breast or Lungs.

The *Marks* of the *Water* are, a dry Cough, a painful heaviness, a difficulty of Breathing, even to Suffocation, great Thirst, little Appetite, a pale Look, and sometimes a swelling of the Legs, now and then accompanied with a Fever; and when the Patient turns himself, you may perceive a rumbling noise.

The collected *Sanies* may be known by the following *Signs*; When the inflammation of the Lungs or *Pleura*, will not, upon Bleeding, or other convenient means, be sufficiently removed, then may you apprehend a collection of such matter to come within a fortnight. Between the thirtieth and fortieth day the Tumor commonly breaks. The Patient shall find a great heaviness in his Chest without considerable pain; and in case it is accompanied with pain, then you are to expect a new Flux, which you must divert by Bleeding. The Patient

Patient hath a difficulty in breathing ; in motion, he hears a rumbling, at least he is sensible that the matter changeth place, and the side affected is to the touch, hotter than the other. He casts up, with violent coughing, a purulent matter, having a continual Feaver ; he finds an anxiety at his heart, and hath little stomach to his meat.

If we cannot expel these Humors by Expectora-
ting, nor by Diureticks, nor Diaphoreticks, nor
by purging Medicines, then are we forc'd to come
to Manual Operation,

This cannot be done without danger, and is not
to be attempted in case the Patient be weak, and
the inward parts already corrupted. However,
this Operation hath less danger than the next fore-
going, and people oftner recover upon it ; yea,
Learned Writers assure us, that by this Operati-
on, and the use of Injection, they have cured ma-
ny of Ulcers of the Lungs.

Concerning the *Place* of Opening, Authors
are not agreed in it ; the reason whereof is obvi-
ous : For, the *Diaphragma* runs higher in some
persons than in others ; whence it comes to pass,
that the collected Humors in some Patients, lie
higher than in others. Secondly, The Chest is
rais'd in some, flat in others ; which here much
alters the case. Besides, the Lungs do often grow
so fast to the *Pleura*, that the sanious matter can-
not easily be carried into the Cavity of the Breast :
In which case it would be ill done, to chuse the
place of Opening lowest, in respect of the *Dia-*
phragma. And in regard that in this, as in other
swellings, the most eminent place is, esteemed
the most convenient for opening, it cannot be
otherwise but that one Chirurgeon hath made

choice of this place, and another useth that place as the best. Upon which account, *Hippocrates Guido, Amatus Lusitanus, &c.* do make the apertion between the third and fourth Rib, counting from beneath upwards: *Fienus, Riverius*, and many others, between the fourth and fifth; *Paulus Aegineta, Vidus Vidius, Fabritius ab Aquapendente, Sennertus, &c.* between the fifth and sixth, which place, in my opinion, is the safest; for, if higher, the *Pericardium*, if lower, the *Diaphragma* may be wounded, of which there have been many sad Examples. But in this difference of dissenting Writers, what hath been said, will direct you to pass into the safest Haven.

All things therefore well considered, chuse the place where to make your Apertion; not the fore-part (for, *before*, the *Sternum* or Breast-bone will hinder your operation here; nor in the back-part, for the Ribs are so close to one another, that without hurting some Vessels, you cannot make any Apertion there) but on the side, four or five inches from the *Sternum*: Neither ought the Incision to be so near to the upper Ribs, as to the lower, because the intercostal Vessels, *viz.* the Vein, Artery and Nerve, lie in the lower part of each Rib, where Nature hath assigned them a place, branching themselves into the middle of the intercostal Muscles; which dissemination nevertheless hinders not, but that the Incision may be made in the middle between the two Ribs.

After you have marked the place with Ink, charge the Patient to breath forth as long as possibly he can, without taking it in, and in the meantime make an oblique, but small Orifice. and put into it a Silver or Leaden Pipe, and take forth four

or five ounces of Matter to run out in a day. In case the Matter does not come forth well, place your Patient on the wounded side, and make him to cough ; if by reason of its toughness it will not yet come forth, then inject into the cavity some abstersive, exsiccating and healing Medicines ; As,

Take Goats whey, eighteen ounces ; Honey of Roses, four ounces ; the Juice of Celandine and Smallage, of each six drams : Mingle it.

Or,

Take the Roots of Comfrey the greater, an ounce ; of Sanicle, half an ounce ; the Leaves of Betony, Agrimony, Periwinkle, Burnet, of each half a handful ; the Cordial Flowers, two pugils ; the Seeds of St. Johns-wort, Holy-Thistle, Roman-Nettle, of each half a dram : Boil them in Water and Honey to a pint and half, strain it, and keep it for your use.

Of this Injection, the Patient may also drink a little twice or thrice a day.

It is yet further to be observed, that the collected Matter is often contained in a Membrane of its own, and by its rising, manifests it self from without ; and then the *Latines* call it *Vomica Pulmonis* : In which case, yon must not stay till the Membrane breaks of it self ; for by delay, the Matter flowing up and down is more difficultly to be got out of the Breast ; but open it presently, taking no other place, but the most raised part of the swelling.

Now, since an *Empyema* for the most part follows upon a *Pleurisie*, and 'tis daily found, that ignorant Chirurgeons take all kind of pain in the sides, Belly and Breast, although caused from Winds only, for a *Pleurisie* ; thereupon immediately

ately opening a Vein ; I thought therefore necessary to write in this place of the *Pleurisie*, as much as is necessary for a Chirurgeon to know, for the preventing such mistakes.

The Pleurisie then is an inflammation of the Pleura, and commonly of the Lungs themselves, caused from afflux of Blood, accompanied with Pain, Cough, spitting of Blood, shortness of Breath, continual Fever, strong and quick Pulse.

The Cause is the Blood, sometimes alone (when a true *Pleurisie*) sometimes mixt with other Humors, then it occasions a *Bastard* one.

The Signs, as may be seen in the Description, are so evident, that those, who know not how to distinguish it from a *Cholick*, are not worthy of any excuse.

The *Prognosticks*.] The sooner the matter is concocted, and the whiter and easilier 'tis ejected, the quicker and safer is the Issue. If the Cough, and difficulty of breathing lessen not by a copious Expectoration, 'tis an ill sign. If the Patient come not to spit the third or fourth day, then will he scarce see the seventh. If upon Bleeding, and other fit means, the pain cease not, the Patient must either die, or the *Pleurisie* will turn to a Consumption, or an *Empyema*.

The Cure.] In this case, *Bleeding* is one of the most necessary and safest means of Cure ; and if used in time, the Patient, in the very Operation, and before the Vein be closed, will find relief, and sometimes be altogether freed of the pain. Nor do I know any Disease, in which there may, to the Patient's benefit, be so much Blood taken away at once, as in this.

There are different Opinions concerning what
side

side the Patient is to bleed on : But those have had little experience of this sickness, who have not found, that Patients (at least in these Countreys) are relieved much more and sooner, when they are Bled in the Arm of the same side where the Pain is, than when it is done in the opposite side.

The Pain not ceasing in four and twenty hours, we are necessitated to bleed twice or thrice, most commonly in the same Arm; but here you must well observe the Patient's strength.

After letting Blood, sometimes Purging, Sweating and Expectorating Remedies, are very necessary. One only Medicine I cannot conceal from you, because of its excellency. The Industrious Physitian Dr. *Hadden*, in his *Cure of the Pleurisie*, hath much commended it, and I have, after once Bleeding, alwayes in the beginning used it with great success, viz.

Take the Juyce of Dandelion, an ounce and half; the Water of Plantane, two ounces; of Holy-Thistle and Scabious, Syrup of Poppies Erratick, of each an ounce; Crabs-Eyes, a scruple and half: Mix it.

Let the Patient every half hour take down a spoonful or two of it, until the Flux be stopped: After which you are to use other Remedies.

CHAP. XVI.

Of removing a Cataract of the Eye.

A Cataract (by the Greeks called *Hypochyma*, by the Latines, *Suffusio*; in the German and Belgick Tongue, *De Staer*) is a concretion of superfluous Humors, by little and little generating a preternatural Membrane betwixt the Cornea and the Crystalline Humor, covering either totally, or in part, the Pupil of the Eye, and so depriving the Patient of his sight, or hindring it.

Difference.] It is either *Imperfect*, when the Humor is thin, or the Apple of the Eye not totally covered; or *Perfect*, when it is changed into a Membrane, or the Pupil is quite covered. Sometimes 'tis white, gray, yellow, green, sometimes of a leaden colour, &c. according as the green, yellow or black Choler is mingled amongst it.

The *Seat* of it is between the *Cornea* and the *Crystalline* humor, being sometimes nearer to *this*, sometimes to *that*.

The *Cause* is a Phlegmatick Humour, either collected there by the weakness of the Eyes, or by the Brain transmitted thither by reason of its abundance.

Signs.] In the beginning, the Patient sees every thing double, and of many colours; the Air seems to him full of Flies, Nets and Clouds, and cannot endure a great light. Thereupon his sight lessens, and all things appear as Spots, and at length there follows blindness. If it be just in the

the Center of the Pupil, yet covers not the whole Pupil; but leaveth round about the sight some place free; and then all the Patient sees, seems perforated. If the Pupil spreads it self, when you rub the eye with your Fingers, then is it yet imperfect; if it remains unmoved, there is no doubt of its being perfect.

The *Prognosticks*.] The imperfect Cataract may easily be cured in the beginning, by convenient External and Internal Medicines, in sound Bodies, and in Patients of a middle Age. The less the Pupil is dilated, the less hope of Cure. The nearer the Suffusion is to the CrySTALLINE Humor, the more dangerous. If the Eye be turned to the Sun, and the Patient then sees no glimmering of Light, there is no benefit to be expected from the Manual Operation. If the Humors of the Eye be commixt by the Needle, though the membrane be removed, then blindness will certainly remain. If in the Operation you happen to touch the Membrane of the Eye, called the *Retina*, the Patient will after that alwayes see the Air, as if full of small Hair and Flies. A Cataract commonly remains so soft unto the third year, that it will not follow the Needle; after the third or fourth year, it is so firm and hard, that it can by no Art be loosened. The Blood spilt by the use of the Needle, causeth no danger, and soon ceaseth of it self. Though the Cataract be not altogether suppressed, but divided into several pieces, the sight doth often perfectly return within six or eight weeks, though before that time the whole Operation should seem to be fruitless; which I speak from manifold experience.

The *Cure*.] The *Imperfect* Cataract requires
solely

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solely the Aid of the Physitian, who by Medicines, and strengthening the Stomach and Head, have done much; to which purpose the conserve of Marjoram, Rosemary, Betony, *Pulv. Diambre*, &c. are very good. And outwardly use the following means.

Take Gum Tragacanth dissolved in Eyebright-water, two drams; Burnt Allom, one scruple: Make a Collyrium.

Or,

Take Celandine-water, an ounce and half; White wine, half an ounce; Spirit of Wine, two drams; White Vitriol, six grains; Prepared Tutty, a scruple; Glass of Antimony, five grains; Sugar-Candy, two drams and an half; Camphire, six grains: Mix it, and make a *Collyrium*.

Or,

Take Juyce of Fennel, of Celandine, of each two ounces; Leaves of Rue and Marjoram, of each a pugil; Eye-bright, one handful; of the Gall of an Oxe, four ounces; the Gall of Hens, an ounce; Red Myrrhe, Aloes, of each a dram and half; Sarcocols, half an ounce; Camphire, two scruples: Mingle them, and let them be distilled in *B. M.*

If the Cataract be confirmed, then let the Manual Operation be your only refuge; but beware of attempting the Operation, if the Patient have long before complained, and still complains of Head-ach or pain of his Eyes; if the Body hath not been cleansed in general, nor the Head in particular; and if the Patient be yet molested with a Fever, Sneezing, Coughing or Vomiting.

Having chosen a convenient season of the year, some morning in the decrease of the Moon, and a clear

clear and serene Air, set the Patient in a Chair, and against him let the Operator sit in one somewhat higher than his, bind up his sound Eye, and make him clap his hand about your waste, without stirring them at all as long as you are busie in the Operation. Let some body hold his Head fast behind, and hold you asunder his Eye-lids, charging him to turn the Eye towards his Nose, which when he doth, quickly thrust your Needle into the *Cornea*, half a straws bredth from the *Iris*, and bring it unto the hollow of the Eye; when the Needle hath touched the Cataract, endeavour therewith to press it gently, and so long from above downwards until it remains there; if it be stubborn, in springing up again and again, divide it into several parts, and keep these particles, or the whole Cataract a little while under, that it may not return again before the Pupil of the eye, then draw out the Needle, and bind up as well the sound as the unsound eye, with Linnen cloaths moistened in some Rose-water, the White of an Egg, and a little Allom mixed together. Beware in the Operation, of hurting the Crystalline Humor, and the sound Tunicles.

CHAP. XVII.

Of Leeches.

Leeches more advantageous than Scarification, and safer than Bleeding, may with benefit be applied, as well in strong as in weak Bodies, they only draw Blood from the Cutaneous Vessels, by which they cure light Diseases, if only apply-
ed

ed to the Skin; but if applied to some greater Vessel, they draw also Blood from the Internal Parts, and so remove internal and more desperate Diseases.

There is great care required in the choice of Leeches, for those with great Heads, and that are green and shining, with hair or blew stripes on their Backs, are not without Poyson; as also those that live in standing or putrid waters: but those are to be chosen that are slender and long, with little heads, and red Bellies, and such as are nourished in clear running Water: They are never to be applied to the Part new taken, but after they have been taken a day or more in fair Water, and fed with a little Blood, that they may be cleansed of all their impurities; the place where they are to be applied, is to be rubb'd till it be red; and if they fasten not, 'tis to be moistened with Cream, or with Blood fresh taken from a Pigeon, or the part it self to be prickt with a Needle till it bleed; if they draw sluggishly, cut their tails off with a pair of Scissars. After they have suckt a sufficient quantity of Blood, and they fall not off themselves, put upon their Heads a little Ashes or Salt, and they will suddenly desist from their work: they are not to be pull'd off by force, lest they leave their heads behind them, from whence incurable wounds, and oftentimes Death succeeds. 'Tis to be noted, that they rather draw Arterial Blood than Venal, therefore they ought to suck the less.

CHAP. XVIII.

Of the Cutting in the Hard Parts.

THe Section which is used in the Hard and Bony Parts, is of four kinds, viz. Scraping, Filing, Sawing and Perforating, that is, Trepaning.

Scraping is used in a Pissure and foul Bone, in the Teeth also, when they are crusted over with a Tartarous black substance; the Bones are to be scraped till you come to the sound part, which is white and solid, and a little blood cast forth; and to the Bone thus scraped, some drying Powder is to be applied; the *Pericranium* and *Periostium* must first be separated from the Bone, before you go about this Operation; for by no means are they to be touched with the Instrument, neither likewise the lips of the Wound.

Filing is used in the Teeth; for when they unnaturally stand forth, and either in Eating or Speaking, are any hinderance to a man, then that which thus sticks forth, is with a File to be taken off, which must be done carefully, without any injury to the neighbouring parts, and by degrees, neither with too great a violence lest it loosen the Tooth.

The use of the *Saw* is in a mortified part, when the Bone is to be cut asunder; concerning which Operation I shall suddenly speak.

Perforating or Trepaning is of great use when the Bones are extremely foul, but 'tis of greatest use in those effects, which the Fissure or a Fra-
F
cture

Fracture of the Skull, or a Contusion may produce : Seeing therefore this Operation is so full of danger, 'tis diligently to be enquired in what Cases 'tis necessary, and in what 'tis not ; for a Fissure as a Fissure, as likewise a Fracture as a Fracture, requires not the Trepan as an operation without which they cannot be cured : In like manner a slight Contusion doth not alwayes occasion such dangerous symptomes, that the Trepan may not cause worse ; for oftentimes a small quantity of extravasated Blood, in Robust People, is often dissolved by the work of Nature her self, except the innate heat be weakened by external Cold, which in the use of the Trepan, let what care possibly be had, cannot be totally avoided ; besides this, the Blood is more often extravasated between the two Membranes, the *Dura Mater* and the *Pia Mater*, there the Trepan can seem to promise but little good ; but in this case I would not much matter to divide the *Dura Mater* ; Experience having taught us, that by the help of Art and Nature, hath an Incision, nay, Gangrene of the Part it self been cured : *Therefore for the most part but in three cases is the Trepan required.*

1. *Where the loose pieces of the Bones prick and wound the Meninges ;* which is to be known by the continual pricking pain presently from the very hurting perceived, granted the Patient be sensible ; but if not, he is alwayes feeling the Part affected with his hands : There happens likewise Contusions of the Eyes, and Convulsions of the Limbs : Besides, the quality of the Instrument which the Fracture hath made, will more plainly demonstrate it.

2. *Where the first Table is only depressed, but the*
second

second broke; there being no way to give passage to the pieces, how well soever by Art or Nature separated. The Signs of this, are, a Dimness, a giddiness, a Fever, Vomiting, and sometimes an Apoplexy; a feeble small Pulse, and especially about the Temples, the depressed Bone in some manner obstructing the Circulation of the Blood in the Brain.

3. *Extravasation of Blood, upon which follows Putrefaction*, and if not remedied, *Death it self*: The Signs which declare this Putrefaction, is a continued Fever, a great Heat in the Head, unquiet Sleep, Watchings, Inflammation of the Eyes, and light Delirium; and moreover, the Temperaments of Bodies are diligently to be considered; for in Phlethorick People, to those above-named Symptoms are joyned, a Laughing, Talking idly, and Redness of the whole Face. In the Chole-
rick appears a yellowness of the Face and Eyes, great Heat, and Madness. In the Phlegmatick, all the Symptoms are less; but sometimes it is accompanied with a Palsie, sometimes with an Apoplexy. In Melancholy men, a Dread, impertinent Talk, and Laughing is usual.

Where the Trepan is necessary, apply it as soon as possible, lest the putrefying Blood causeth greater evils, that is, on the third, fourth, or fifth day.

The manner of Trepaning is thus, The Hair being shaved, Let the Skin be divided with a double Incision, in form of a Cross to the *Pericranium*, avoiding with the greatest diligence alwayes the temporal Muscles, and the Sutures of the Head; this done, bind up the Wound, except the Hemorrhage be small (which very often is so violent,

that it hinders the Chirurgeon for some dayes from any further Operation) if it will then give leave, to divide likewise the *Pericranium* from the Skull: After some few hours (the Skull already bar'd of its *Pericranium*) the Patient well plac'd, his Head must by some person be firmly held, his Ears being stopt with Cotton, then set on the Trepan with a Pin, which must neither be upon the Fracture, nor upon the Sutures (although there are some that venture to apply it upon the very Sutures themselves) the Surgeon holding in his left hand the Instrument, and with his right, let him gently turn about the Trepan until it hath taken good hold round, then take out the Pin, and set the Trepan on again without it, moving it still about, and if you see any small Filings of the Skull, take off the Trepan and wipe them away; and the Trepan it self is sometimes to be dipt in Oyl, that it may the easier be turned about; and sometimes in Water, that it grows not hot. If any Blood appears, you may be certain that the Trepan hath past the first *Table*, then are you to have a greater care, lest the Trepan should unawares slip in, and wound the Meninges, from whence oftentimes follows sudden Death: For the *Dura Mater* invests the inside of the Skull, in the same manner as the *Pericranium* doth the outside, but yet not so strongly joyned to it, but that by a fall or blow, it may be easily separated from the Skull.

When the piece of Bone, separated by the Trepan, begins to be loose, you must with a little Instrument put in, between the Skull and the Trepan'd part, and free it from the whole, and so gently take it out with a pair of Forceps,

If

If there remain any inequality from Trepaning, in the inside of the inward Table, that may cause injury to the Meninx, 'tis to be taken away with an Instrument called *Lenticula*.

And that there may be a discharge given to the coagulated Blood and Matter, the *Dura Mater* is to be compressed with an Instrument called a *Decussorium*: To effect the same, 'tis commended that the Patient (if sensible) his Mouth and Nose being shut, hold his Breath, so that the Brain being raised upward, the concreted and corrupted Matter may be thrown forth; but very seldom is the Matter discharged by this only remedy; for the Chirurgeon hath need enough of the *Decussorium*, *Sponges*, *Lint*, and the like Instruments; the description and delineation of the which, you may find in *Joh. Andr. à Cruce*, *Paræus*, and others. Read the 4th Chapter of this Chirurgery, where Fractures of the Skull is described.

CHAP. XIX.

Of Ustion, or Burning.

Enough hath been said of Cutting, now a little of Burning; when neither Medicine nor Knife bring relief, we must then come to the Fire, as well in the soft as hard parts: In all Burning, great care is to be taken that the neighbouring parts be not hurt; therefore it is very necessary to defend them against it with Lint: That Burning is certainest, which is made by an actual Caution, viz. a red-hot Iron, than that which is performed

a Potential, that is, by Corrosive Medicines; yet for the most part, the Patient's fearfulness makes choice of this; whichsoever you use, beware of applying Oyl alone, or Butter, to remove the Escar, for it hath been observed not once only to have occasioned a Gangrene. *Diapalma* Plaister, or Lint wet in Wine, will be sufficient.

CHAP. XX.

Of Issues.

Issues are little Ulcers made by Art in a sound part of the Body by a red-hot Iron, Lancet, Scissors, or corrosive Medicine, to evacuate superfluous humors, and so either to cure or prevent Diseases.

These troublesome Guests are rarely courted, and are chiefly prescribed when we see gentler Medicines to profit nothing, and after the Body hath been well purged.

In what part soever they are made, it is alwayes to be observed they never ought to be inserted in the beginning, middle or end of a Muscle, but alwayes in the space between two Muscles, which requireth the knowledge of Anatomy, except according to the example of Quacks, whose custom hath taught them to find out a place even blindfold. In the Head, the place is the middle of the *Coronal Suture*, made oftner by other Nations than is a practice amongst us. In the Neck they are not so often made, how necessary so ever they may appear. The *Italians* use to make them between the Shoulders with success. In other places they are either very troublesome or inconvenient. The

Of the Seton.

The *Manner* of making Issues is divers: If you make use of the *Potential Canterbury*, apply a Plaister to the part, having a hole in the middle about the bigness of a Pea, in which lay a little *Costick*, and over that a Bolster and another Plaister; and after three or four hours, take off the Plaisters, and laying on the Escar a Plaister of *Diapalma*; dress it twice a day, that it may the sooner separate.

Those which desire it rather by *Incision*, the Skin being taken up either by the Forceps, or by the Hand, divide it with a pair of Scissars or Lancet. If Burning be preferred before the other wayes, burn the Skin, but not the subjacent Muscles; for indeed the Skin it self is not to be wholly penetrated, oftentimes the touching only the Superficies of it is enough.

When the Scar falls off, take little hard Dossels made of Lint, spread upon them some Detersive Medicine, and press them into the Ulcer, until they have made a sufficient impression; then afterward keep in this Cavity a Ball of Wax, Wood, or Silver, or a Pea, which is to be often taken out, and another put in, and so is to be continued till the Disease be cured, or weakness hinder.

CHAP. XXI.

Of the Seton.

Although the application of a *Seton* be with greater trouble than an *Issue*, yet it brings much greater advantage to the sick Patient; for what *two Issues* cannot remove, oftentimes is performed by *one Seton*

It may be made in the Arms and Legs, and many other parts of the Body; but in the *Nape of the Neck*, between the first and second *Vertebra*, or second and third; yea, between the third and fourth, is only in use amongst us, but I could wish it was more frequent.

There are *three Instruments* necessary to perform this Operation; *A pair of Forceps, a Needle, and String*. The *Forceps* which are to hold up the Skin, must be perforated of each side; the *Needle* must be three-pointed, and answer to the holes of the *Forceps*, which it must pass through. The *String* is to be of *Silk*, not exceeding the thickness of the *Needle*: Let the *Chirurgion* take up the Skin with the *Forceps* and gripe it hard, which being somewhat stupified, the Patient will feel the less pain; then let him pass the *Needle* red-hot through both the holes of the *Forceps*, Skin and all; after which, with another *Needle* let him bring through the thread: The first day, to ease pain, apply to the part Lint dipt in Whites of Eggs and Rose-water mixt together: afterward let Digestion be procured by the use of convenient Medicines; when digested, let the String be drawn every day, sometimes to this side, sometimes to that, so that the mattery part may hang out of the Wound. Thus the Operation being perfected, the Ulcer may be kept open as long as occasion requires, or the Patient pleaseth.

After this manner many Authors, both Ancient and Modern, order the making the *Seton*; but this Operation is much easier performed, if in the right place the *Chirurgion* take up the Skin with one hand, and his Servant with another, and so pass it through with a sharp-pointed *Needle*, but not

not made hot; the String being of Thread, not Silk, of convenient thickness, and rubb'd with Wax.

CHAP. XXII.

Of the drawing forth of Bullets.

NOW we are come to the Third Part of Chirurgery call'd *Exarefis*, which removes things superfluous: They are of a twofold Nature, either they are generated in the Body it self, or else brought thither by accident.

We treat of the last first, to wit, *The extraction of Bullets out of the Body*; which is not difficult, if it appears whether it be nearer to the part where it made its entrance, or to the opposite to which it hath penetrated.

If it be observed to be near the Orifice, let it be drawn forth with a convenient Instrument; if nearer to the opposite part, let incision be made upon it, and there taken forth: but if the Bullet cannot be found out by a Probe, the Member is to be so placed, that the Bullet by its own weight may come forth; which if it happens not to do, the Wound is to be cured; and let the Chirurgeon expect until the Bullet shows it self near the Skin, which very often requires a long time.

CHAP. XXIII.

*Of the Extraction of a Dead Child and the
Secundine*

T*hat the Birth may be Natural*, it is necessary, That the Infant the whole time of its continuance in its Mothers womb, lies in such a posture that the Arms and Feet being contracted, the Head downwards, having the Face towards the Mothers Back; the whole *Fœtus* lying transverse in the bottom of the Womb; until requiring greater room, which happens in the seventh, sometimes in the eighth or tenth, for the most part in the ninth Month, the head of the Infant descends towards the mouth of the womb, the Limbs which were before contracted, being extended, it breaks through the Membranes wherein it was included, by which the water that is contained in them, flows forth, which serve to make the parts slippery, and so is convenient to facilitate the Birth.

If any one of these be wanting, then one of these four things necessarily happens; either, 1. Both the Mother and the Child, although they may live, yet there follows no exclusion. 2. Or the Mother lives, and the Child dies. 3. Or the Child lives, and the Mother dies. 4. Or both the Mother and Infant dies.

Causes hindering Labour] are, 1. *When the Pains of the Birth are none, or not sufficient.* 2. *The great weakness of the Mother.* 3. *The greatness and strength of the Child; and on the contrary, the*
slender

slender and tender constitution of the Mother, or when the passages are so straight that the Infant cannot come through them. 4. The number of Children, especially if they endeavour to come forth at the same time. 5. The transverse, or any other preternatural posture of the Child. 6. If the Child in the Birth it self be fallen down with its Head upon the fore-part of the *Ossa Pubis*, which case Authors of the greatest account, whom I know, and our Midwives have not at all observed; so by how much the greater the Pains of the Birth are, there is so much the less hope of coming out, except the Head be first a little raised, and the *Fœtus* be turned towards the back, and so into its true passage by the hand of the Midwife. 7. The Weakness of the Child it self, which makes it not able to add any thing towards its exclusion. 8. The Death of the Child. 9. The not sufficient recesses of the Hip-bones towards the Back; for the *Ossa Pubis*, except in the very hardest Labours, and then but very seldom do divide.

The Signs of a dead Child are as followeth.

The Mother feels no more the Motion of the Infant, although strengthening Cordials be exhibited; but in this case when the Infant is as it were tired, stirs it self a little, you have a much more certain Sign. Take a piece of the Crum of Bread, and dip it in Canary wine, and apply it to the Navel of the Mother, then open a Vein in the Foot, and if by the use of these things, there follows not a motion of the Infant, it is a very ill sign.

When the Mother turns her self from one side to the other, and perceives the Child to fall on the side

side laid upon, like a stone or a great weight; the Face, and chiefly the Lips grow pale, the extreame parts cold, as likewise the lower Belly, the Paps begin to grow lank, the Breath becomes fetid, great pains of the Head, Faintings and Fevers, Water and stinking Gleet flows out of the Womb; if the After-Birth be excluded before the Child, 'tis impossible the Child can live long; but the surest sign of all is, if the Membrane of the Head of the Child be not observed to be any longer tense; for as long as it is tense, the Infant lives.

Prognostick] Except the dead Child be suddenly drawn forth, it puts the Mother in great hazard of Life. The Feaver not being great, other Symptoms, though great and fearful, yet take not away the hope of recovery.

The Cure.] If Medicines, with the aid of Mother and Midwife, profit little, then must the business be committed wholly to the Chirurgeon, except the Woman be too weak, or the Child having been dead for many dayes, which he ought to consider, lest he lose both his Credit and Labour.

But first, it is diligently to be enquired into which of the Causes it is that hinders the Birth: If the Child be greater and the passage straighter than usually, they ought to be dilated; this some Midwives do with convenient Instruments, and so draw forth the Child alive; but where they are wanting, the Midwife must clutch her hand very close, and thrust through the Internal Orifice into the Womb it self; then putting her Fingers one after another through the Orifice into the inner part of the Womb, to discover the situation of the Child; and if she finds the Arms or Feet to come inconveniently, let her gently raise it up, bringing the

the Head downwards, which if she finds to be next the Orifice, if possible, let her put in her other hand through the *Pudenda* into the Womb, and so with both her hands laying hold of it, draw it forth.

But if this Operation cannot be performed, then with a hook firmly fixt (lest it injure the inside of the Womb) in the Mouth, Eye or Ear of the Child, and so gently draw it forth; and if the *Fœtus* will not follow, then with another Hook, blunt on the outside, and sharp within, let him cut in pieces the Belly, Breast, or Head of the Child; and if the Arms or Legs cannot be brought forth, let him cut them off; so at length, being deprived of its Limbs, the remainder may be drawn forth.

But if by this way the Woman can neither be delivered, with a sharp and strong Knife, the Limbs one after another are to be cut out, and so the Child be drawn forth by piece-meal: It is necessary that this be performed by none but a good Anatomist.

The *Secundine* will presently follow the Birth, for it's of no use, that being excluded; for the Mouth of the Womb, suddenly after delivery, is so closely shut, that not without great pain it can admit the Hand of the Midwife; therefore the Midwife, as soon as may be, is to draw it forth, and with her fingers, if it sticks very close to the Womb, gently to separate it, but not pluck it away forcibly, which is mortal; and although many Writers and Midwives of inferiour Rank, little regard the retention of the After-Birth for some time after delivery; yet I think I have good reason to pronounce it, one of the greatest Symptomes of Womens Labour.

CHAP. XXIV.

Of the extirpating of a Mortified Part.

When a *Dead Part* altogether becomes useless, that it may not do any injury to the neighbouring Parts, it is to be *taken away*: *But in what place?* Most convenient is the *Joynt*; but the cure by such extirpation is rendered more difficult, and the use of the Part altogether lost; therefore the Extirpation is better to be made two, or three, or more fingers breadth below the *Joynt*, except the Mortification hath extended it self to the uppermost parts of the Arms or Thighs; for then we are forced to take the *Joynt* it self: *But again in what Part? Whether in the whole or mortified?* The Amputation is more safe in the sound Part, although accompanied with greater Pain.

The common way both of the Ancient and Modern.

The Patient having received convenient nourishment, is to be placed upon a Form, then let the Skin and subjacent Muscles be drawn up as much as possible, by a strong man, and there kept; and an inch above the place where the Member is designed to be taken off, with a narrow Ligature is the Part to be very hard bound; this done, with a dismembring Knife, the Skin with the Flesh is speedily to be cut all round to the Part, and the *Periostium*, by scraping, is to be separated from the Bone; and
if

Of the Extirpation of a mortified Part. 79

if it be where there is a double Bone, as in the Leg, and below the Elbow, the Flesh and Ligaments between them is to be divided; which being performed, let the Bone be separated with a very sharp Saw. If the Flux of Blood be not great, to apply only those Medicines that stop Blood, will be sufficient; but if great, an actual Cautery is to be used, which is only to be applied upon the great Vessels; then let the Ligature be taken off, and the Part be fitly bound up.

If either the Patient or Chirurgion be averse to the use of a Cautery, then as soon as the Member is taken off, let the Skin together with the Flesh, in four distinct places opposite one to the other, be taken up with a Needle and waxed Thread, and the Ligature being loosned above, or drawn down, that, if possible, they may meet. So by this way is the Hemorrhage staid, the Bone preserved from all danger, and the Wound sooner cured. But this way is painful and troublesome, therefore ought it the seldomer to be used.

Aquapendens his Way.

When the principal design of Art in this Operation, is to put a stop to Putrefaction, to cause as little pain as may be, and to stay the flux of Blood, all which the above-quoted Author thinks may be done, if the Member be amputated in the dead Part, but near to the sound; then the Bone being divided, with burning hot Irons let the remainder of the dead Part be cauterized till the Patient perceive the heat of the Fire: So he writes, that by this course a Flux of Blood is not to be feared, less pain is caused, and within the space of two
or

or three dayes, will appear a ſeparation of the Mortified Part from the Sound; but in my opinion, we ought to conſider well of the Cauſe. For in a *Spacelus*, ſprung from an Internal Cauſe; in a Body otherwiſe ſound, this way is the beſt; but in a *Spacelus* cauſed from a defect of innate Heat, the former is more profitable.

CHAP. XXV.

Of the Fleſhy Rupture.

Sarcocoele, which is a Fleſhy Rupture, is a Tumor beſides Nature, produced from impure Blood, flowing in too great quantity into the Teſticles, and there degenerated into Fleſh.

In this definition, received by the beſt Phyſicians and Chirurgeons, I note two things: 1. The cauſe of this Tumor, not to be impure Blood, ſeeing the beſt, may produce it; not ſimply abounding in quantity, becauſe it happens alſo in waſted Bodies, though 'tis not ſo ſoon generated, nor arrives to ſuch a greatneſs in theſe, as in thoſe Bodies; but the true cauſe is the Eroſion, Rupture or Dilatation of the Membranes which cloſe the Mouths of the Capillary Veſſels, that the nutritious Blood may not flow too ſuddenly into the Part; from whence, more Blood flows into the Part than what is required for its nourishment; and Nature changeth that Blood which otherwiſe would putrifie into a fleſhy ſubſtance. 2. This fleſh ſometimes grows to the ſecond of the common Tunics of the Scrotum, and not to the Teſticles, in which caſe it may be taken away

Way, without either hurting or cutting of them out.

Signs are, the hardneſs and ſlow increaſe of the Tumor, which is rather more troubleſome than painful, except accompanied with ſharp Humors; no appearance of any Tumor in the Groin.

Prognosticks.] A *Sarcocoele* is hardly cured by the help of Medicines, and ſeldom by Manual Operation, without taking off the Teſticle, if it extends it ſelf into the Groins, for the moſt part incurable.

Cure.] In the beginning, when the Membranes of the Veſſels being Eroded, Broke or Dilated, do give leave for too much Blood to iſſue forth, *Bleeding, and the uſe of Repelling and Reſtringent Medicines* profit much; but when it hath begun to augment, then we may uſe theſe following means; Let there be made a little Orifice in the *Scrotum*, rather in its Superior then Inferior part, through which, by the help of Plegets let Suppurating Medicines be applied, ſo that if poſſible, to waſte the fleſh, every dreſſing diligently wiping away the Matter, but not all, that the remaining fleſh may be the better conſumed.

If theſe things ſucceed not, draw forth the Teſticle, and by Inciſion take off as much fleſh as may be done without injury to it; then reſtore it again into its place, and the remainder of the fleſh endeavour to conſume by Suppuration.

But if there be no hope of curing this Rupture by the recited means, draw forth the Hernious Teſticle as far as you may, then paſs once or twice a Silken Thred above the Tumor by the Proceſs of the *Peritoneum*, then paſs both ends of the Silk through the Orifice it ſelf, ſo that which

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was on the right side, may be on the left, and that of the left, on the right; and having ordered that the process of the *Peritonaeum* may be tied with a knot, then cut off the Testicle, letting both the ends of the Silk hang out of the *Scrotum*, and so cure it as another Wound.

I cannot here but friendly advise, 1. *The Chirurgeon ought to consider well of the Cause, before he comes to the Operation it self*; for sometimes the *Parastates* are so swelled, especially the Testicles being Scirrhus, that they may easily deceive a very curious Examiner. 2. The Ligature ought to be made as near to the Tumor as possible, for by how much the higher part of the Process of the *Peritonaeum* be perforated, it is observed to be so much the thicker, which thing will retard the Suppuration and the falling of the Thread; in the mean time *Convulsions* coming on, denounce death. 3. The *Spermatick Vessels* detained in the *Scrotum*, oftentimes by Natures variety, exceed the Testicles themselves in greatness, which causes no other inconvenience but only fear, which I have observed to be true, in more than one.

CHAP. XXVI.

The Extraction of the Stone out of the Bladder.

THe Stone is a hard Body concreted from Slimy, Salt or Earthy Matter, by a peculiar Lapidifying quality, causing Pain, Obstruction; and other Symptoms in the place where it is detained.

The

The Extraction of the Stone out of the Bladder. 83

The Cause is a Pituitous, Salt or Earthy Matter, which neither by heat nor cold, by a peculiar lapidifying quality is changed into a Stone.

Signs.] The Urine is white, slimy, crude and troubled, suddenly adhering to the Urinal; sometimes it is bloody, sometimes sandy or gravelly; sometimes full of little threads, and not seldom supprest; a great thirst, a frequent making of Urine, but with pain and by drops, the Patients place themselves with their Thighs across, alwayes holding their Privy Parts in their hands, pressing the bottom of their belly; the Privy Part is alwayes erected, very painful to go or walk, in the Region of the Belly a weight perceived, the Patient seldom making water without going to Stool, the Intestine commonly falls out, especially in young people.

Although all these Signs seem plain, yet they may sometimes deceive a Physician; it was formerly the custom with a *Catheter* passed through the *Ureter* into the Bladder, then thrusting in one or two fingers into the *Anus*, not only to search for the Stone, but also understand its greatness. But this searching was so very painful, that it was difficult, through fear of pain to have it permitted a second time, and this thing gave occasion to have ready at the second time of searching, all Instruments necessary for cutting out the Stone; but the Omnipotent and great Prince of Physicians hath now granted to those miserable Patients, those Chirurgeons, who not only without *Catheter*, but also without pain both in old people and children, which can most certainly find out the Stone; and for this reason they excel the so much esteemed *French men*. I wish other places also may enjoy the same Artists.

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Prognostick.] A crumbling Stone seldom, a hard Stone can never be wasted by Medicines, whatsoever boasting persons may say; sometimes it is so soft, that by the very *Catheter* it self it may be broke to pieces in the neck of the Bladder, and be brought forth; sometimes through it's smallness it comes forth whole; sometimes it sticks in the *Urethra*, out of which, without danger and great pain it cannot be removed; if it sticks in the *Tunicles* of the Bladder, or grows to the Superficies of the Interior Coat, it cannot be taken away by Section, without the death of the Patient: By how much the greater the Stone is, the Operation is the more dangerous and painful. Stones are often drawn forth out of Womens Bladders about the bigness of an Olive, or a Walnut, without Incision: but this way by Dilatation, of Extracting the Stone, is so dangerous, that it ought not to be performed but by experienced Chirurgeons.

Cure.] Stones generated in the Kidneys, Bladder, or other parts of the Body (for, they may in any) in general, require the assistance of the Physician; but we in this place treat only of the manner of drawing them forth out of the Bladder by Incision. There are several wayes by various Authors proposed; but that which follows, is the most common, and most sure.

Let the Chirurgeon place his Patient on a soft Pillow in a strong mans Lap, after he has three or four times jumpt from a high place, then let him tie both his hands to the soles of his Feet, and let two standers-by hold each Knee, extending them as far as may be one from the other; then let him take the first Finger of his left Hand, or if necessity requires, the two first, annointed with Oyl of Lillies,

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Lillies, Roses, or fresh Almonds, and thrust them up the Fundament, with his right hand gently compressing above the *Os Pubis*, so that the Stone may slip down vnder the *Os Pubis*, into the *Perinaum*, which when brought thither by the foresaid Fingers, let him make Incision with a sharp Knife in the left side between the Testicles and the *Anus*, near to the Suture of the *Perinaum*, cutting to the ver Stone it self, and if it comes not out of the Wound it self, nor by the thrusting forth of the Fingers which are in the *Intestinum rectum*, let him draw it forth with a pair of Forceps, or which is better, with the *Lapidillum* or Spoon. The Stone being taken out, and all the Ligatures loosed, let the Wound be bound up according to Art, applying Medicines, stopping Blood, *viz.* of Meal and Bole, &c. with the greatest care to consolidate it as soon as possible, lest the Patient labour with a dropping of his Urine through the wounded part:

And this is the manner of drawing drawing forth the Stone, which Chirurgeons use to call *Apparatus Minor*, whihh chiefly is used in Children, although there are those which proceed thus in people of full growth: But in our Countrey always this Incision is made by them whose Fingers are fitted for this Operation.

But in People of full Age it is sometimes very difficult to reach the Stone by the Fingers put up into the Fundament, and after the same manner to bring it down into the *Perinaum*, if not altogether impossible, as many think it; therefore there is another way found out, which they call *Apparatus Major*; the Patient is put on a Table, and bound, and held as above, the Chirurgeon through the *Uretra* passeth a Director into the

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Bladder to the Stone, then Incision being made as above, in the hollow of the Director, puts in the Conductor, taking the Director out of the *Uretra*, he passeth into the Wound the Forceps, the *Lapidillum*, or other Instrument convenient for drawing out the Stone, by which he may both lay hold of it, and draw it forth, not making use of his Fingers in the *Anus*, except great necessity compel him to it. Where the Stone is bigger than the Orifice, and cannot come forth, the Wound is to be enlarged, or the Stone to be broken into pieces by the Forceps, and so drawn forth in parts: This done, the Binding and Consolidating the Wound, ought to be the same as in Children, giving it a stitch if it be too great, putting in a Silver Pipe for two or three dayes, that may give passage to the Concreted Blood, Slime and Sandy Urine.

The manner is the same in Women, but only the Fingers are not put into the *Anus*, but into the Privy Parts, and the *Catheter* must not be crooked, but straight, and much shorter than the other.

There is likewise another manner of drawing forth the Stone; the Chirurgeon thrusting his Finger into the *Anus*, presseth the Stone upwards to the Belly, then through the Wound made in the right Muscle above the *Os pubis*, according to the *ductus* of its Fibres, by the assistance of the *Lapidillum* or Forceps draw forth the Stone; by this way is never observed any coming forth of the Urine, and the place supposed convenient to draw forth the Stone: But this Operation in it self is dangerous and troublesome, and if the Lips of the Wound made in the Bladder unite not to the Muscles of the *Abdomen*, there follows an Ulcer of the Bladder, more painful, but less cureable than

than the Stone it self; which inconveniences have caused it not to be reckoned among other Operations by true Practisers.

CHAP. XXVII.

Of the Hare-Lip.

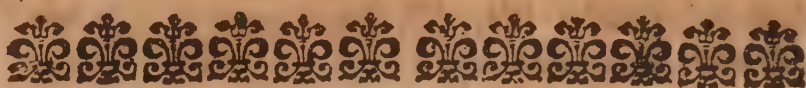
THe fourth and last Part of Chirurgery call'd *Anaplerosis*, which restores what is deficient, is chiefly used when any part of the Nose, Lip, or Ear is wanting, whether it be from the Birth, or from an External Cause.

As to the *Lip*, in a little defect, let it be first separated from the Gums, then let the edges be scarified and joyned together with a Needle, laying over it an agglutinating Plaister, and so in a short time the Cure will be performed.

In a greater Defect, let the Lip be separated from the Gums, then put a Linnen Cloth between, and let the Extremities be brought together by Bandage, after some few dayes, convenient Scarification being made, by the help of a Stitch, and Plaisters, let the ends be united.

The *Nose* and *Ears* being deprived of any part, after what manner they are cured, *Taliacotius* in a particular Treatise hath largely set down; to the which I refer the Reader.

The End of the First Part.



BARBETTY'S CHIRURGERY.

The Second Part.

Which treats of *Tumors*, *Wounds*
and *Ulcers* : In three Books.

The First Book of the Second Part of *Chirurgery*.

Of Tumors.

CHAP. I.

Of Tumors in general.



Tumor besides Nature, is a Disease in which the Parts of the Body are indecently enlarged and extended, so that they are rendered unfit to perform its Actions.

The Differences of Tumors are taken, 1. From the Part Affected; as an Inflammation of the Eyes, Jaws, &c. 2. From the Causes.

The Causes are, 1. The Parts of the Body removed out of their Natural place. 2. The four *Hu-
mors,*

mors, as well Natural as Preternatural, viz. Blood, Choler, Phlegm, Melancholy, to which likewise we add Serum and Wind.

Tumors for the most part are generated from the Humors, and that either by *Congestion*, or *Fluxion*.

They come by *Congestion*, when the Natural heat of the Part being diminished, the good Humors are ill concocted, or the vicious are not sufficiently evacuated. 1

By *Fluxion*, from a twofold cause, *External*, viz. a Fall, Blow, External Heat, too great Motion, &c. *Internal*, viz. Pain, Superabundancy, Thinness, Acrimony of Humors, &c.

The Signs of Tumors are, an Extention of the Part, Pain, Redness, Heat, Hardness, &c. But these are better explained in particular Tumors, than in general.

The times of Tumors (for all curable Tumors have four) are as followeth, *Beginning*, when the Part begins to swell; *Increase*, the swelling, pain, and other Symptoms are augmented; *State*, the Symptoms stand at a stay, and grow not worser; *Declination*, when the Symptomes are diminished.

Prognostick.] Tumors produced from Phlegm or Melancholy, are hard of Cure. Those are dangerous, which are generated from corrupt Blood or Choler, which seizeth the Internal Parts, which shew themselves about the greater Vessels, Joynts, Nerves, and the Membranous or Noble Parts: Those that are of great bigness, and that happen in *Cacochimick* Bodies,

They are *Terminated* four wayes; 1. By *Dissipation*, which the lessening of the Symptomes do declare. 2. By *Suppuration*, wherein the Pain
and

and Pulsation is increased together with a Fever.

3. By *Induration*, which the too often and immoderate use of Repelling and Dissipating Medicines hath caused. 4. *Degenerating into a Gangrene*, from the defect of Natural Heat.

The Cure is performed two ways: 1. By *binding any further Flux to the Part*. 2. *In removing that which is already gathered in the Part*.

We stay the Flux of Humors, 1. By *Intercepting*. 2. By *Repelling*. 3. By *Revelling*. 4. By *Derivation*. 5. By *Corroborating the Part it self*.

The Matter already gathered, is taken away, 1. By *Astringing and Repelling Medicines*, to wit, when 'tis thin, and sticks not too firm to the parts. 2. By *Resolvents*, when it is thick, and adheres more firmly to the Part. 3. By *Suppuratives*, when the other are too weak. 4. By *Fire and Cutting*, when other means effect nothing.

CHAP. II.

Of Inflammation.

A Phlegmon or Inflammation is a Tumor besides Nature, from Blood thrown forth into the Skin or Subjacent Muscles, causing Heat, Redness, Pain, Pulsation and Tension.

Difference.] 'Tis Perfect, when from Blood alone: Imperfect, when Choler, Phlegm, or Melancholy is mixed with the Blood, and then 'tis called Phlegmone, Erysipelatodes, Oedematodes, Schirrholes.

The

The *Cause* is sometimes *Blood alone*, sometimes mixt with *other Humors*.

Signs, are Heat, Redness, Pain, Pulsation, Shining, Tension, Hardness, Renitency.

Prognosticks.] An Inflammation of the External Parts frees the Internal from many Diseases; alwayes wholesome, except from its too great extension it produceth a Gangrene; dangerous and of hard cure is that which seizeth on the Eyes, Jaws, *Penis*, *Pudendum Muliebre* and Joynts. In a young person, and in Summer soon cured; longer of Cure, in a fat, than a lean Body.

The *Cure* hath four *Indications*. The first of these respects a good Diet; let him chuse a clear Air, his Meat and Drink little, and that cooling; all hot, sweet and fat things, as Pepper and Ginger, are hurtful; as also the motion of the Body, especially of the Part affected; sleep is very convenient: All Costiveness, Anger and Venery are noxious,

Second, that stops the further Flux of the Humor, which may be performed by Revulsion, Derivation, Repelling and Interception; therefore let a Vein be opened as soon as possible, it being most necessary: Revulsion is made in the Opposite and most Remote part, Derivation in the nearest: If you may not open a Vein, you must use Leeches and Scarifications. Whilst these things are done, seeing the Body is seldom clean, but that alwayes there are ill Humors mixt with the Blood, by Purgings rightly used, and often repeated, as also Bleeding, we effect much.

In the mean time, the Part affected requires Repelling Medicines, from which we must abstain, Where, 1. The Noble Parts send the Humors

mors to convenient places, and to the *Glandules*.
 2. Where the Humors are Malignant. 3. When
 Critical. 4. When the Body is very impure.
 5. When the part affected is very weak or painful.
 6. Where the Inflammation is about some Noble
 Part.

Repelling Medicines.

The Roots of Bistort, Tormentil ; the Leaves
 of Cyprus, Mirtles, Plantain and Oak; the Flowers
 of Balaustians and Roses, Quince-seeds, Red San-
 ders, Galls, Acacia, Dragons-Blood, Whites of
 Eggs, Vinegar, Red Wine, Allum, Bole, Oyl of
 Roses, Myrtles, *Empl. de Spermate Ranarum*.

Take Rose-Vinegar two ounces, Whites of
 Eggs beat together N^o 2. Bole-Armenick, three
 drams; *Lap. Hematidis*, a dram : Mix them.

Take the Juice of Housleek, Purslane, and Plan-
 tane, of each an ounce ; Rose-Vinegar, sower red
 Wine, of each an ounce and half, Oyl of Myr-
 tles, an ounce : Stir them together in a Leaden
 Morter, adding to them of the Powder of Pome-
 granate Rinds and Bistort, of each a dram : Make
 it into a Linament.

3. Indication requires the taking away the Hu-
 mor already in the Part. Here Resolvents are first
 to be used ; but they not effectual, then Suppura-
 tives.

Resolvents or Discussives.

Roots of Galangal, Orrise, Dill, Southernwood,
 Rue, Savin ; Flowers of Camomil, Millilot, El-
 der, Aniseeds, Carrawayes and Cummin, Am-
 moniacum,

moniacum, Bdellium, Sagapennum, Tacamahac, Oyl of Dill, Nard, Rue, Bayes; Ointment of *Agrippa*, *Martiatum*; Emplaisters of Betony, Oxicroceum, Diachylon, Leaven, the Dung of Beasts, Spirit and Lees of Wine.

Take Roots of Orrise, Marsh-Mallows, of each an ounce and half; the tops of Wormwood, Flowers of Camomile, Melilot, of each one Pugil; Herbs, of Pellitory of the Wall, Mullein, of each one handful; Meal of Barley, and Fenugreek, as much as is sufficient; Boil them in White Wine, then being beaten together, add of Oyl of Orrise and Camomile, of each an ounce: Make it into a Cataplasm. Or,

Take Cows-dung, three ounces; Juice of Hemlock, one ounce; Oyl of Camomile half an ounce; Castor, two drams, Bole-Armonick half a dram; Red Myrrhe, two drams; Saffron, one dram; Meal of Lupines, as much as sufficeth to make it into a Poultrice.

Suppuratives.

Marsh-Mallow Roots, Mallows, Camomile-Flowers, Figs, Galbanum, Bdellium, *Sagapennum*, *Ammoniacum*, Fat of Hogs, Geese, Ducks, Hens, Oyl of White Lillies; Ointment of Marsh-Mallows both Simple and Compound, Basilicon, the Plaisters of Diachylon, of Mussilages and Melilot.

Take Onions roasted in Embers, three ounces; Figs, N^o x. beat them together, adding of Ointment of Basilicon, six drams; Ducks-Grease, an ounce; Virgins-Honey, and the Meal of Linseed, of each as much as is sufficient to make it into a Cataplasm. Or,

Take

Take the Roots of White Lillies, Marsh-Mallows, of each an ounce and half; Leaves of Mallows, Cows-Parsnips, of each an handful; Figs N^o viij, Raisons, six drams; Meal of Marsh-Mallow-Roots, or of Wheat, two ounces; Venice-Sope, three drams; being boiled and strained, add to them of Hogs-grease one ounce, Oyl of Camomil two ounces: Mix them according to Art, and make a Cataplasme.

4. Indication respects the Symptoms, which, if not removed, hinder the Cure; the chief of which are,

1. A *Fever*; The Cure of which concerns a Physician, except it be removed by Bleeding.

2. *Hardness*, Whose Cure look for in the Chapter of *Scirrhus*.

3. A *Gangrene*; Which is treated of in a particular Chapter.

4. *Pain*; Which we do remove by the following Medicines.

Anodines.

Marsh-Mallows, Dill, Mallows, Camomil, Henbane, Tobacco, Linseed, Seed of Poppy, Fennugreek, *Sperma Ceti*, Cream, White of Eggs, Oil of White Lillies, Linseed, Ointment of Populeon, fat of Hogs, Hens, and Mans Opium.

The great Vertues of the following Poultrice I have not seldom experimented.

Take Flowers of Dill, Camomil, of each a handful; Elder, a handful and half; Linseed-Meal, four ounces; Oil of Dill, White Lillies, of each half an ounce; Boil them in Milk to the consistence of a Poultrice.

CHAP. III

Erysipelas.

Erysipelas is a Tumor besides Nature, from Choler, thrown forth for the most part only into the Skin it self, sometimes on the subjacent Muscles, causing Pain, Heat and other Symptoms.

Difference.] 'Tis perfect, when sprung from Choler alone; as it is imperfect, when Blood, Phlegm or Melancholy is mixt with it; from whose Appellation it likewise takes its name, and is called *Erysipelas*, *Phlegmonodes*, *Oedematodes*, *Scirrholes*; sometimes an Ulcer is joyned with it, which sometimes consumes only the Skin, other times the Flesh it self.

Cause is Choler, seldom alone, sometimes mixt with Phlegm and Melancholy, but oftentimes with Blood or Serum; whence, those Medicines that are proper for a *Phlegmon*, oftentimes do good in an *Erysipelas*.

Signs.] Great heat, sharp pain, Redness mixt with Yellowness, easily giving way to the touch, but as suddenly returning; the Swelling and Extension of the part little, and the Pulsation lesser: which last gave occasion to Authors, of questioning whether an *Erysipelas* ought to be reckoned amongst Tumors. It is accompanied alwayes with a Fever, except from an External Cause.

Prognosticks.] An *Erysipelas* is seldom dangerous, except the Matter be repell'd from the External parts to the Internal; yet more dangerous, when

when it seizeth on the Noble parts and Jaws ; and when a Wound, Fracture, Dislocation or Putrefaction are joyn'd with it.

Cure.] What concerns *Diet* here, is first and chiefly to be considered ; *Air, Meat and Drink* must be cooling : all sharp, hot, fat and sweet things hurt, as likewise do too great motion of the Body, *Watchings, Costiveness, Venery and Anger.*

Purging is very necessary, therefore those Medicines described in the third Chapter of the first Part, are here convenient.

A perfect *Erysipelas* admits not of *Bleeding* ; for the fatness of the Blood bridles the sharpness of the Choler : But if the Fever be vehement, the Flux great, and any Blood (which for the most part happens) be mingled with the Choler, 'tis convenient to bleed, especially in Plethorick Bodies : In delicate and weak bodies, Cupping-Glasses, with Scarification or Leeches, if things should require, will serve,

These being thus done, to provoke Sweat, is the best of all other Remedies.

Outwardly to the affected part, ought not to be applied, 1. *Oyl*, or any fat thing ; as those things which yield matter to the Choler, easily increase Putrefaction : But if yet it is your pleasure to use them, they must be tempered by mixing them with other Medicines. 2. *Repellents*, except the *Erysipelas* be very little, the Part affected remote from the Noble Part, and the Humors be yet flowing, and then they ought not to be used without Resolvents mixt with them.

The Cataplasms described in the foregoing Chapter, may for the most part be applied here with success.

The

The Plaister of Diapalma dissolved in Vinegar, is in daily use; the leaves of Tobacco, Colewort, and Henbane applyed to the part affected, strongly draw forth the heat. There are those which use Sheeps-dung boiled in Wine-Vinegar; as also the Flowers of Camomil, Mellilot, and Elders, boyl'd in new Milk.

Chalk powdred, put upon the part, laying Cap-paper over it, quickly and safely cures.

The following Fomentations I have experienc'd to be of great virtue.

Take Red Mirrhe powdred, two drams; Saccharum Saturni one dram; Camphire a Scruple, Opium 25 grains, White-wine six ounces: Let Linnen Clothes be dipt in it, and applyed warm to the part, often renewing them, when dryed, or cold.

Another.

Take the white Troches of Rhasis one dram, Camphire one Scruple, Spirit of Wine an ounce, Elder-water six ounces: Mingle and apply it as before.

Fumes of Mastick; and Frankincense may likewise be used five or six times a day, especially if the Erysipelas be in the Face.

When an Ulcer accompanies it.

Take the white Troches of Rhasis, two drams; Red Mirrhe, Litharge of Gold, of each a dram, Flower of Brimstone half a dram; Sarcocol, two Scruples; whites of Eggs, as much as is sufficient to make it into a Lineament.

CHAP. IV.

Of Oedema.

Oedema is a Tumor beside Nature, arising from Pituitous Matter, white, soft, without pain, oftner caused by Congestion, than by Fluxion.

Difference.] It is perfect, when it proceeds only from Phlegm: Imperfect, When mixt with other Humors: Thus Oedema, Phegmonodes, Erysipelatodes, Schirrholes.

Cause is Phlegm, sometimes alone, sometimes confused with other Humors; for the most part it is produced from the ill disposition of the Lymphæducts.

Signs are Whiteness, Softness, yielding to the Fingers, little Pain, and less Pulsation.

Prognosticks.] If an Oedema degenerate into a Scirrus, or Abscess, it is hard of Cure. It is dangerous if a Consumption, or Dropsie accompany it; it oftner happens in old people, Phelgmatick bodies in the Winter time, and in all those who with immoderate eating and drinking continually, debilitate the natural heat.

Cure.] This, as the precedent Tumors, requires a good Diet *Meat* and *Drink*, as also the *Air* must be moderately hot and dry: Roasted Meat is better then Boyled; Fruit, Cheese, and Fish hurt; as also too great a quantity of Meat and Drink: Wine, either of it self, or altered with hot Herbs is good; moderate *Exercises* of the body before Meals, is as profitable, as much *Sleep*, especially

especially diurnal is prejudicial; *Costiveness*, *Rest* and *Sadness* are Noxious.

Bleeding is altogether here unprofitable, and very seldom used; but *Sweating* and *Purging* very necessary, sometimes *Vomiting*: Always regard must be had to the Stomach.

To the Tumor it self. In the beginning we apply Repelling Medicines mixt with Discussives, but so, that the Discussives exceed; afterwards we use only Discussives, though sometimes stronger, sometimes weaker, according to the condition of the Disease.

Take Aloes three drams; Bole-armenick half an ounce; Acacia, Dragons-blood, Cyperus Roots powdered, of each two drams; Saffron half a dram, Rose-Vinegar an ounce and half; Oyl of Mirtles and Earth-worms, of each an ounce; Wax, as much as is sufficient to make it into a Liniment.

Another stronger.

Take Crude Brimstone, Ashes of Vine Branches, Sal-Gemme, of each two drams; Bean-meal two ounces, Vinegar an ounce, Oyl of Nuts a Dram, Turpentine, and Wax, as much as sufficeth either to make it into the Consistence of an Oyntment, or Cerat.

Another yet stronger.

Take Ladanum, an ounce and half; Frankincense an ounce; Stryax Camitis half an ounce; Brimstone six drams; Alom, Saltperer, Ashes, of each two drams; Cows-dung half an ounce; Oyl of Rue an ounce; Turpentine, and Pitch, as much as sufficeth to make a Plaister.

An Excellent Cataplasme.

Take Roots of Marshmallows, three ounces;

H 2

Bryony,

Bryony, Dwarf-Elder, of each 2 ounces; Leaves of Sage and Rue, of each a handful; Savin, half a handful: Boil them in equal parts of Wine and Water; in the end, adding of Vinegar three ounces: then being well beat together, add Bean-meal two ounces & a half, Ashes, half an ounce, Cows-dung one ounce; Salt half an ounce; Leaven an ounce and half; Oyl of Camomil four ounces; Hoggs-grease, two ounces: Make it into a Cataplasm.

If it come to an Abscess, which rarely happens, this Poulrice is excellent, especially if the Vinegar be omitted, and in its room, Onions, and a quantity of *Unguentum Basilicon* be added.

If an Oedema proceed from a Consumption, Dropfie, or ill habit of body, till those Diseases be cured that cannot.

I have used often to Cure an Oedema with this Wine or Purging Conserve, and exactly rowling the Arms or Legs with Rowlers of 12 or 15 yards long, beginning from below, upwards, and so allowing no liberty for the Humor to descend. By this way the Noble parts are Corroborated; the Preternatural Humors Evacuated, and the External Members in a few days space restored to their former condition.

Take Roots of Orrise Floren. an ounce; Sea-holly and Parsley, of each half an ounce: Rheubarb, Agarick, Trochis. of each three drams, Senna, six drams; Cinnamon two drams; Cloves half a dram. *Sem. Siler. Mont.* two drams: tie them in a Cloth, and let them infuse in two pints of old White-wine, then take every morning four or five ounces for a Dose.

Or,

Take of Electuary of Juice of Roses, an ounce;
Jalap, a dram; Spirit of Salt, a scruple: Mix it in
an Electuary.

Let the Patient take the quantity of a Bean, or
Hazel-Nut every third or fourth day.

CHAP V.

Of Scirrhus.

Scirrhous is a Tumor besides Nature, sometimes
generated of Tough, Viscous Phlegm; sometimes
of Melancholy, hard, not yielding to the touch, nor
painful.

Differences; It is perfect when sprung from Me-
lancholy, or Phlegm alone: Imperfect, when o-
ther Humors are unnaturally mixt with it.

Cause, is Melancholy, or tough Phlegm.

Signs, great hardness void of pain, of a white
colour, if from Phlegm; if from Melancholy,
Livid.

Prognostick.] A Scirrhus, where there is no
pain, and upon which the hair grows, is alto-
gether incurable, and if Livid, it is very dange-
rous, and often degenerates into a Cancer: An
imperfect, small, and painful one, by means
sometimes (although very rare) may be cu-
red.

Cure.] If the Scirrhus be produced from
Phlegm, the same manner of Diet is to be obser-
ved as in an Oedema; but if from Melancholy,
you must choose a clear Air, moderately hot, and

moist; the Meat of the same quality, and of easie Digestion; all sharp things, and those that are hot in the third or fourth degree, hurt: Let the *Drink* be neither thick nor strong, but warming: *Sadness, Anger, Cares, Venery*, much *Sleep*, hurtful; but moderate *Exercises* very necessary.

Bleeding is scarce ever administred with any success, but *Sweating*, and *Purging* with great.

Amongst the *external Remedies* are *Discussives* and *Emollients*; but yet the whole course of the Cure must be mixt, now increasing the quantity of the one, then of the other.

The use of *Suppuratives* in the Cure of *Scurrhus*, hath seldom any good event.

There are those which try cutting out, and burning, which must be attributed to their rash ignorance; except contained in a proper Tunicle, and then the name of *Scurrhus* is ill attributed to that Tumor.

Emollient Medicines.

Butter, the fat of Hens, Geese, Ducks, Hogs, Foxes, Bears, Mans: Mallows, Marsh-mallows, Orrach, Gums, Ammoniacum, Galbanum, Bdellium, Styrax, Liquida; Oyntment of Marsh-mallows; Plaisters of Diachilon, of Mussilages, and Mellilore.

Resolvents are set down in the Chapter of a Phlegmon.

Take Gum, Galbanum, Ammonianum, Opponax of each an ounce; Flower of Bimstone, Red Myrrhe, of each halt an ounce: Camphire, a dram; Oyl of White-Lillies, Ducks-grease, of each six drams; Wax, as much as is sufficient to make it into a Plaister,

Take Roots of Marsh-mallows, three ounces
Orrise,

Orrise, an ounce; Leaves of Colworts, Pellitory of the Wall, Mallows, Flowers of Camomile and Millilote, of each a handful; Linseed two ounces, boil them in Water; and being well beat together, add to them Horse-dung two ounces; Hoggs Grease, Oil of Camomil, of each an Ounce; boil'd Onions half an Ounce: Make a Cataplasim.

CHAP VI.

De Tumore Aquoso, or Watry Tumor.

Tumor Aquosus is a Collection of a Watry Humor in the whole body, or in some one part; soft, and without pain, yielding to the Fingers, but suddenly returning.

Difference. Sometimes the whole body is swell'd with water; which Tumor is called *Anasarca*; sometimes the lower Belly only, or with the Leggs, and then it is called *Ascites*; if Wind, mixing with the water, extends the Belly like to a Drum, it is called *Tympanites*: These are three kinds of Dropsies, whose Cure rather appertains to the Physician than Chirurgion; Water Collected in the Head, is call'd *Hydrocephalos*; in the Breast, a *Dropsie of the Lungs*; in the Navel, a *Hydromphalos*; in the Cods, *Hydrocele*.

Cause is Serum, to wit Salt-water, produced from the lost heat of the parts that serv'd to Sanguification, and Chylification.

Signs; This Tumor is softer then Oedema, and more yielding to the Fingers, without pain, with some itching, and if you look on it by Candle-light, very shining.

Prognostick.] Watry Tumors are not dangerous, if the principle parts that feed it, are not too much debilitated, yet all are of difficult cure, especially those in and about the Joynts.

Cure; Diet is here the same as in Oedema; All Salt things, indurated with Smoke, and too great a quantity of Drink, are very hurtful; as also Spirit of Wine and Pepper; otherwise hot and dry *Aliments* are best.

Purging is very necessary, provided it be not too great, lest the parts already weak, are more weakned; provoking *Sweat* and *Urine*, here are very profitable.

Bleeding, by experience I know it, to be hurtful to all Hydropick people.

Medicines Purging Water.

Roots of *Asarum*, Dwarf-Elder, Jalap, white Mechoacans, Leaves and Bark of Elder, Euphorbium, Turbith, Gum Gutta, Syrup, and Species of Diacarthamum, Cream of Tartar.

Take Syrup of Roses solutive, with Senna, Diacarthamum of each an ounce; Jalap eight grains, Cream of Tartar two scruples, Parsley-water, as much as is sufficient to make it into a Potion.

A Purging Wine which Cures the Dropsie it self.

Take Roots of Gentian, Orrise, Succory, Fennel, Masterwort, of each an Ounce; the middle bark of Elder, an Ounce and half; Leaves of Ground-pine, a handful; Rosemary two pugils; Flowers of centaury the less, one pugil; Seeds of Smallage, Coriander, Carraway, Roman-Nettle, Fennel of each a dram; Senna 2 ounces; Agarick three drams; Jalap half an ounce; Turbith, a dram and half: Let them be cut, and infused in six pints of Rhenish-wine: Dose four ounces.

Medicines

De Tumor Aquoso, or Watry Tumor. 105

Medicines consuming water, outwardly used.

Roots of Orrise, Bryony, Birthwort, Flowers of Elder, Camomil, Leaves of Celandine, Centaury, Calamint, Rue, Dill, wild Marjoram, Sulphur vivum, Salt, Alum, Bay-berries, Ammoniacum, Bdelium.

Take Cows-dung half an ounce, Pigeons-dung two drams, Sulphur vivum, half an ounce; Nitre two drams; Honey, Vinegar, of each an ounce and half; Bean-meal two ounces; Bay-berries, Cumminseeds, of each half an ounce; Oyl of Dill, Nard, of each an ounce; White-wine, as much as is sufficient to make it into a Poultice.

Or,

Take Frankincense, Mastick, Myrrhe, of each half an ounce; Camphire half a dram; Goats-dung an ounce and half; Brimstone, Salt, Cummin Seeds, of each three drams; Turpentine and Wax, as much as sufficeth: according to Art make it into a Plaister.

Hydrocephalus is always of difficult Cure; Water contained in the *Ventricles* of the Brain, or between the Brain and *Meninges* is very dangerous; but less dangerous, when collected between the *Dura* and *Pia Mater*, or between the *Dura Mater* and the Skull: For the *Dura Mater* may be divided with a Lancet, if you can come at it; but least danger of all, when detained without the Skull.

Purging Sudorificks and Diureticks seldom do any good here, but *Cauteries*, *Blisters*, *Issues*, *Scalps* are more profitable: but sometimes we are forc'd to come to Incision or Ustion, which Remedies although dangerous, have Cured several.

Some Chirurgions use with an Actual Caustery to burn the Skin of the Head in five, six, or more places:

places, but not together and at once, but at several times, lest the Patients strength should be too much spent, continually choosing that place, which the watry Humor makes, to appear most convenient.

Some with a Lancet open the skin neer to the Sagital Suture.

Which of these Remedies are best, cannot absolutely be declared. I much esteem an Actual Cautey, when the Water is between the Skin and the Skull; but if under the Skull, between the Meninges, I do not see how this operation can be performed without a Lancet.

But which of them soever you chuse, have a care of discharging all the Water at once, for in the very Operation it self the Patient dyes, or at least is very much debilitated; for till the end of the Cure, all the Water is not to be taken away, lest the debilitated Parts deprived of that heat which the Water possesse, do corrupt: but rather what remains must be consumed by Internal and External Discussives; and this is to be observed in all Watry Tumors that are Cured by a Paracenthesis.

In the same manner the *Watry Tumor* in the *Navel* and *Cod* ought to be handled, after other Medicines have been applyed in vain.

Dropsie of the Breast belongs not to Chirurgery, except where a Paracenthesis is convenient; concerning which, Read the 15th Chapter of the first Part.

CHAP. VII.

Of the Flatuous, or Windy Tumor.

THe *Flatuous Tumor* is a Disease produced of Wind, not yielding without resistance to the fingers.

Difference. Some are without pain; others with it; in the one, the wind is in motion, in the other, quiet.

Causes of Wind, are Phlegme, especially when mingled with Choler, which, as Ferment doth froth, so it proceedeth wind; it always happens upon a debility of the Parts, by reason of which, although endeavouring to concoct the Humors, yet are notable.

Signs are Inflation, with a resistance yielding to the Fingers, a rumbling noise, especially if shaken.

Prognosticks.] It seldom comes in Fleishy parts; in other parts it brings many inconveniencies, in weak and Cacochymick bodies, it's of difficult and tedious Cure.

Cure.] The same Diet in here to be observed as in an Oedema: Pease, Beans, Turnips, Chestnuts, and all Crude Fruit do extreamly hurt; On the contrary, Wine, and other things moderately warming, profit; as also Spices, and those things which disperse Wind, as Nutmegs, Mace, Anise, Carraways, Lovage.

The Stomach, and the whole Body require
Purging

Purging and Corroborating Medicines, always mixing with them those that disperse Wind, and sometimes also where Corroboratives are used, *Anodines*; *Landanum*; *Opiatum* cautiously used (that is, half a grain or a grain for a Dose) is here excellent; for besides, that it ceaseth pain, it also by its Diaphoretick quality removes the cause of the Disease: to cause Sweat, is as necessary, as Bleeding is unnecessary.

Outward Medicines discussing Wind.

Roots of Galangale, Lovage: Herbs, Dill, Mint, Marjoram, Peniroyal, Rosemary, Rue, Chervil: Flowers of Elder, Mellilot, Camomil: Seeds, Anise, Carraways, Cummin, Fennel; Nutmegs, Cardamum, Castor: Oyl of Rue, Nard, Spike, Dill, Carraway distill'd; Mace, Nucista, exprest and distill'd, Mellilot Plaster.

Take Oyl of Wormwood, Rue, of each two drams; Oyl of *Nucista* exprest, one dram; of Mace distilled, half a dram; Castor, dissolved in *Aqua vite*, two Scruples; Make it into a Lineament.

Or,

Take the Leaves of Rue, Calamint, of each half an handful; Bean-meal, two Ounces; Seeds of Cummin and Anise, of each half an ounce; Bayberries, Salt, of each three drams; Nitre, Brimstone, of each a dram; Goats-dung, six ounces; White-wine, as much as is sufficient: Mix them, and boyl them into the consistence of a Cataplasm.

Or,

Take the Roots of Pellitory of Spain, half a dram; Venice-Sope, three drams; Castor dissolved in *Aqua vite*, one dram; Seeds of Cummin, Carraways,

Carraways, of each two drams; Ashes of Earth-worms, half a dram; Oyl of Spike, half an ounce; Mastick, three drams, Wax and Turpentine, as much as sufficeth: Make it into a Plaister according to Art.

CHAP. VIII.

De Herpete.

HErpes is a Tumor besides Nature, sprung from yellow Choler, disfiguring the skin with corroding and spreading Pustules.

Difference.] Where Choler solely predominates, it produceth *Herpes exedens*, but where Phlegm is mixt with Choler, a *Herpes Miliaris*.

Cause is sometimes Choler alone, sometimes mixt with Phlegm; and I see not why the serum of the Blood may not often be here taken as a cause: For the Lymphaducts being out of order, do produce mutations in mans body, heretofore unknown.

Signs.] Are little Pustles, like to Millet-seed; a heat, itching; and after rubbing, a moistness, and little Ulcers.

Prognosticks.] *Herpes* is of difficult Cure, but of little danger, unless so rendred by the immoderate use of repellents.

Cure] The same Diet is here required, as in an Erysipelas. Moreover, *Purging* is here very necessary; *Bleeding* not to be allowed of; the use of *Baths* is excellent, and their waters taken at fit times,

times, safely Cure this Disease: *The Decoctions of China, Salsa, &c.* also benefit much.

Outwardly.] Fasting-Spittle oftentimes doth good, because if it should be repelled to the Internal parts, it causeth a Feaver, and other ill Symptoms.

With great success many times, have I seen applyed the Pouder of *Lapis Scissilis*, mixt with Vinegar; some use Mustard boyl'd in Butter; to which they add some Gunpowder. Lye also, and Urine have helpt many; *Unguent. Fuscum*, of *Felix Wurtz* is excellent here; as also the following Plaister.

Take Sarcocols, Crude Brimstone, of each two drams; Mastick, Frankincense, *Lapis Calaminaris*, of each half an ounce; white Troches of Rhasis, Litharge of Gold, Myrrhe, of each three drams; Goats Suet, half an ounce; Wax and Turpentine, so much as is sufficient to make it into a Plaister according to Art.

Take the Powder of Chalk mixt with Cream; and anoint the part, fomenting it before with the hot Lees of White-wine.

In a rebellious Herpes.

Take the brown Oyntment of *Felix Wurtz*, three drams; white Oyntment with Camphire, one dram and half; Ceruse, Brimstone, Myrrhe, of each a dram; Litharge a dram and half; *Mercurius dulcis*, Verdigrease, of each a scruple and half; Oyl of Roses, as much as sufficeth: make it into an Oyntment.

Or,

Take *Lapis Prunella*, one dram; Flower of Brimstone, half an ounce; Salt of Saturn, a dram and half; old Oyl of Rape, as much as sufficeth to make it into a Linament.

CHAP.

CHAP. IX.

Of Atheroma, Steatoma, and Meliceris.

Atheroma is a Tumor besides Nature, contained in a proper Cist, caused from a Humor like to the Pap of sodden Barley, without pain, of the colour of the skin, not yielding to the fingers, nor when they are removed, suddenly swelling out again.

Steatoma is a Tumor besides Nature, contained in its own proper Tunicle, caused from a Matter like to Suet, and of the same colour, soft, from a small beginning, by degrees increasing, difficulty yielding to the Fingers, but they being removed, returning again to its former greatness.

Meliceris is a Tumor besides Nature, included in its proper Tunicle, engendred from a Humor, like to Honey, without pain, round, easily yielding to the Fingers, which being removed, returns again to its first Figure.

Differences.] This Matter like to Honey, Suet, or Pap, if gathered about the Joynts, is called a *Ganglion*; if about the Glandules of the Neck, a *Glandula*, *Scrophula*, or *Struma*; if in the Arms, Legs, or Head, *Tuberculum*; if from the Pox, *Tophus*.

Cause of these Tumors is *Phlegm*, in the one more, in the other less, reciding from its Natural Constitution; and sometimes, but very seldom, mixt with *Melancholy*.

Signs are declared in their Definition.

Prognosticks.] They are scarce ever cured, but by Manual Operation: If the Vesicle be broken,
or

112 Of *Atheroma*, *Steatoma*, and *Meliceris*.

or not all taken out, there remains a *Fistula*, or a foul Ulcer: The Cure of which will be both difficult and tedious.

Cure.] They are sometimes but very rare, removed by strong Resolvents: I have Cured some with Balsom of *Peru*; some use *Oxicroceum* Plaister, or the following:

Take *Laudanum* an ounce; Red *Mirrhe*, three drams; *Camphire* a dram: Mix them; and make it into a Plaister according to Art.

Another.

Take Gum *Sagapenum Ammoniacum*, of each half an ounce; Roots of *Pellitory*, *Euphorbium*, of each a scruple and half; *Brimstone* three drams; Oyl of *Amber* a dram: Make it into a Plaister.

If it break, and the Matter discharge out of the *Tunicle*, then must you use *Corrosives*, for other Medicines are too weak.

Corrosives, and *Cathereticks*.

Roots of black *Hellebore*, burnt Galls; burnt *Date-stones*, *Verdigrease*, burnt *Alum*, *Quick Lime*, *Vitriol*, *Mercury Sublimate*, and *Precipitate*; Spirit and Oyl of *Vitriol*, Spirit of *Salt*; the *Liquor of Tartar*; Oyntments of *Aegyptiacum Fuscum* of *Felix Wortz*; Ashes of *Oak*, and *Vine-branches*.

Some use *Arsnick*, and *Orpment*; but they are not used but with the greatest danger in those places known by *Anatomy*, under which the *Nerves*, *lye*; to the *Skin*, and *Carnous Excre-scencies*, they may be applyed with the less danger.

The following Oyntment will suffice.

Take *Vitriol* well sweetned, a dram; *Verdigrease*, a scruple, Oyntment of *Aegyptiacum*,
half

half an ounce: Make it into an Oyntment.

If they tend to supuration, which is very seldom, let the Surgeon assist Nature with Maturatives; but the safest Method of taking away these Tumors, we have shewn in the twelfth Chapter of the first Part.

CHAP. X.

Of Scrophula, Struma, or Kings-Evil.

STruma or Scrophula are Tumors besides Nature, contained in a proper Tunicle of their own, from a Melancholick or Pituitous Humor; shewing themselves in manner of Tubercles in the Neck and adjoining parts.

Difference.] They are sometimes moveable; sometimes fixt; sometimes but one, sometimes many.

Cause is Melancholy or Phlegm, or both mixt together.

Signs.] Are Hardness, Inequality, and seldom painful.

Prognosticks.] These Tumors are of long and difficult Cure; especially if many, or fixt; they are dangerous when they grow painful, and threaten to become cancerous; or if fixt to any great Nerve or Vein, sometimes they are Hereditary, and sometimes peculiar to a Region or City; when Cured, they for the most part leave behind them great Scars; where the recurrent Nerve is divided, the Speech is lost, and oftentimes Life it self.

Cure.]

114 Of *Scrophula*, *Struma*, or *Kings-Evil*.

Cure.] Diet must be here the same, as in a *Oedema* or *Scirrhus*.

Purgings is necessary, but not *Bleeding*; provoking sweat by the same way and means as in the *French Pox*, effects much; yea, it alone cures the *Kings-Evil*.

Sometimes they are consumed by Internal Remedies, that have appropriated qualities of curing *Scrophulae*.

Such are these:

Roots of round Birth-worth, Briony, Sowbread, Dropwort, Devils-bit, Orrise, Pimpernel, Pellitory of Spain, Squills, Vervain, Figwort, Leaves of Cypress, Bawm, Rue, Savory, Flowers of Broom, burnt Crabs, burnt Eggs-shells, *Sal Gemma*, Spunges.

New Spunges are much commended, if boiled in Ale, drinking thereof three or four times a day; or calcined, and taking half a dram of the Powder Morning and Evening; The following Powder is likewise very much praised.

Take the Ashes of Sea-Spunges, *Os Sepia*, Long Pepper, Cinamon, *Sal Gemma*, Pellitory of Spain, Cypress Nuts, Galls, Red-Rose Leaves, of each half an ounce: Make a Powder. Dose, two scruples or a dram.

Or,

Take of Sponge-stone, three drams; *Sal Gemma*, two drams; Salt of Tartar, a dram: Make a Powder. Dose, two scruples, or a dram.

Outwardly Resolving and Emollient Medicines are applied; which, if they effect it not, then use *Suppuratives*; when 'tis suppurated, it is to be cured as a malignant Ulcer.

But if the above-named Medicines signifie nothing,

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thing, then we come to Corrosive Medicines, and to the Incision-Knife.

An excellent Resolving Emollient Plaister.

Take Gum, *Galbanum*, *Ammoniacum*, *Bdellium*, of each half an ounce; Bay-berries, Stavesacre, Pellitory of Spain, Cummin, of each six drams; Pigeons-dung, a dram; Goats-dung, three drams; Hogs-grease, an ounce and half; Oyl of Camomile, an ounce; Wax and Pitch, as much as is sufficient to make it into a Plaister.

A Linament that stops the Flux of Humors, and oftentimes wholly cures the Kings-Evil.

Take Oyl of Myrtles and Bayes, of each half an ounce; Ointment of Martiaton, an ounce; Quicksilver extint with Flower of Brimstone, six drams: Make it into an Ointment.

Let the *Scrophula* be annointed with it twice a day, and if they are not consumed, at least they will be diminished: but the Chirurgeon must look into the Patients mouth each day, lest upon the continual use of Mercury, there follows a Flux, which causes a swelling of the Tongue and Jaws: The Plaister of Frogs, with Mercury, is likewise good here.

Or,

Take Gum, Caranna, an ounce; crude Mercury extint in Turpentine, three drams: Make a Plaister.

If the Tumor be painful, there may be added to this Plaister a dram of *Opium*, which hath the virtue of resolving and easing pain, and is not cold, but hot.

Suppurating Medicines are set down in the second Chapter, and Corrosive in the foregoing Chapter.

In Suppurated and opened Scrophula's, this Linament is much esteemed.

Take Oyl of Bayes, Ceruse powdred and allay--
ed with *Aqua vite*, of each an ounce; Roch-Al-
lom, half an ounce; Salt, two drams: Make it in-
to an Ointment.

CHAP. XI.

Of a Bubo.

BUbo is a Tumor (besides Nature) of the Glandules, from impure Blood, Red, Painful and hard.

Difference.] Where little, and not painful, and easily brought to Suppuration, 'tis called *Phyma*; but where there is more of Choler in it, *Phygeton*; in the Arm-pits, *Pannus*; behind the Ears, *Parotis*: The one *Malign* or *Pestilential*, the other not; sometimes contracted from unchaste embraces, then 'tis called a *Venereal Bubo*.

Cause is Blood, never alone, but alwayes mixt with some other preternatural Humor.

Signs, are redness about the Glandules, pain, heat, tension, hardness, pulsation, and sometimes a Fever.

The Liver and Spleen, according to the opinion of the Ancients, discharge themselves into the Groins; the Breast and Heart, at the Arm-pits; the Brain, at the Glandules of the Ear; but now far other use is attributed to the Glandules. Of which there are several Tracts written, and we shall give our opinion in another place.

Pregnosticks.] The Bubo that is not *Malign*, is
not

not dangerous, except it be long in discussing, or suppurating, and then fear lest it Fistulate: In the Arm-pits it is sooner brought to maturity than in the Groins; and here sooner than behind the Ears: On the contrary, a *Malign* is for the most part a sign of sudden death, although all outward signs may appear well.

The *Venereal* is not mortal, but of hard Cure, and for the most part precedes the Pox; chiefly when by Bleeding, or the use of repelling Medicines the matter is returned from the External, into Internal Parts.

Cure.] Diet the same as in a Phlegmon: In a *Benign*, purging is necessary, provided it be not with too strong Medicines: *Bleeding*, except a great Fever, or a Plethora require, I admit no more of it here, than of *Repellent Medicines*; for 'tis unseemly that Nature's assister should return that into the Interior Parts, which Nature her self did eject (which for the most part is Critical) *Sweating* in all *Buboes*, profits much: *Scarification* hath no place here, except in Malignant, nor *Leeches*, but where very much inflamed.

The *External Cure* is to be managed so, that the Humor may be dissipated with *Resolvents*, which by reason of the frigidity of the *Glandules*, are required the stronger; adding also Attractives to them; for in all, I suspect lest the Matter be not perfectly thrown forth: But in a painful *Bubo*, 'tis first necessary to ease the pain, before you come to any other Medicines.

In extream pain,

Take Muffilages of the Seeds of Fleawort, an ounce and half; the Yolk of an Egg, Saffron, a dram; Fresh butter, half an ounce: Make it into

Or,

Take Leaves of Mallows, an handful ; Meal of Marsh-Mallow Roots, and Femugreek-seeds, of each two ovnces ; Barly-meal, an ounce ; Ducks-grease, Oyl of Dill, of each half an ounce : Boil them in Milk, to the consistence of a Cataplasme.

Resolvents are above described ; Attractives shall be presently set down.

If it yield not to discission, Suppuration is to be endeavoured ; which is of all, the safest method : Being suppurated, let it forthwith be opened ; but rather by Incision, than Cautey : And so let it be kept opened until the whole Tumor be dissolved.

In *Children*, for the most part, we commit it wholly to Nature ; only prescribing a good Diet, and forbidding the often touch of the part affected with the hands ; or we apply the Plaister of Diachilon, or of Mussilages : 'tis also often cured by the only using of Oyl of Olives, Rape, Camomil, or White Lillies.

In a *Pestilential Bubo*, neither Bleeding or Purging (whatsoever others say) must be used : Sudorificks and Refrigeratives are convenient ; outwardly *Attractives* in the beginning are necessary.

Attractives.

Roots of Aron, Briony, Birthwort, Pellitory of Spain, Dittany, Cresses, Virgins-Flower, Leeks, Nettles, Garlick, Onions, Figs, Mustard, Gums, Galbanum, Ammoniacum, Euphorbium, Succinum, Cantharides, Castor ; Ox gall, Pigeons-Grease and Goats-dung ; Quick-Lime, Nitre, Brimstone ; Leaven, Black-sope, Plaisters of Diachilon, Oxicroceum, Thereacle, Mithridate.

Take

Take Roots of Marsh-mallows, an ounce; Onions two ounces; Elder and Camomil-Flowers, of each a pugil; Figs, N^o xij. Fenugreek-meal, two ounces; Pigeons-dung, two drams; Thereacle, three drams: Make a Cataplasme.

Or, Take Roots of Pellitory of Spain, Mustard-seed, of each two scruples; Salt, two drams; Treacle, three drams; Gum *Ammoniacum*, Dissolved in Vinegar, as much as sufficeth to make a Plaister.

Many take a Hen or Frog divided in the midst, and apply them warm to the affected Part, often changing them: Some apply to the Part the Breach of a live Hen or Pigeon, the Feathers being pulled off: Others take away all by Incision, which is very dangerous, and not to be permitted; but they proceed best, who forthwith in the very beginning apply a Viscatory to the *Bubo*; then the following morning or evening, open the Blister; and afterwards dressing it with Attractives. This is of great use, and of much esteem.

Take the Plaister of *Diachylon* with Gums, of Mussilages, of each half a pound; Ointment of Basilicon, four ounces; Mustard-seed, three ounces: Make a Plaister. More of the Cure of a *Bubo*, look in our description of the Plague.

In a *Venerereal Bubo*, you must neither Bleed nor Purge, as long as there remains any hope of Curing it by External Remedies, lest the Malignant Humors which Nature threw out, should be returned again into the Body, and so occasion the Pox: But Suppuration is to be endeavoured by all means, and the Suppurated Tumor

fortwith, yea, although the Matter be not perfectly concocted, is to be opened; if it is tough, as for the most part it is, *Attractives* are to be applied, especially Cupping-Glasses; they not being sufficient, when the whole Mass of Blood is infected, the Cure of the Pox is to be prescribed; often using this following purging Decoction.

Take Roots of China, Sarsaparilla, of each three ounces; Polipody, an ounce; Bark of *Guaicum*, three ounces; Senna, two ounces; *Agarick Trochiscatum*, two drams; Cinamon, two drams: Infuse in a sufficient quantity of Water over the Fire for 24 hours, then boil them to three quarts, and to the strained Liquor add Syrup of Roses, Sol; with Senna, four ounces; mix them. Dose, six or eight ounces.

Some make this Decoction with stale Beer or Wine; but in these things the Surgeon ought to consider the past manner of living of his Patient, his Temperature and Age: If you desire that it purge you more, you may add a dram or two of *Trochisc Albandal*; and if not strong enough, then you may mix it with five or six grains of white *Precipitate*, provided strength gives leave.

CHAP. XII.

Of the Carbuncle.

A Carbuncle is a Tumor besides Nature, from adust Blood, corrupting the Part where it is collected.

Difference] 'Tis called by the Greeks, *Anthrax*; by the Latines, *Ignis Persicus*; by the Germans, *Een Kool*: Some endeavour a difference between an *Anthrax* and *Carbuncle*, but lose their labour. There is no other difference, but sometimes it is bigger, sometimes lesser, sometimes more malignant, other times less.

Cause is adust Blood assuming the nature of black Choler, and so apt to putrifie.

Signs are, sometimes but one great Pustule, sometimes many little ones; which being opened, appear black, and all about enflamed: The Crust being removed, instead of Matter, you find spongy flesh; the Part affected is very painful, a Fever present and watchings.

Prognosticks.] Very dangerous, when black, especially in a Plague-time; when near to a principal Part, if great, and suddenly vanishing.

Cure.] Strong *Purging Medicines* I much mistrust, *Glisters* or *loosening Medicines* will suffice; viz. *Cassia Fistula*, *Manna*, *Tamarinds*, *Cream of Tartar*, &c. But more suspicious to me is *Bleeding* to fainting (as *Galen* writes) and in its room, *Leeches* or *Cups*, with *Scarification* will be sufficient. But I relie most upon *Sudorifick* and *Re-*

frigerating Medicines ; using outwardly the same Medicines as in the Plague.

This Plaister is much commended to make a *separation of the Eskar*.

Take old Threacle, Mithridate of each half an ounce ; Leaven, Turpentine, of each two ounces ; Honey of Roses, an ounce and a half ; Fresh butter, two ounces ; White Vitriol, an ounce ; Soot, two ounces and half ; Black Sope, three ounces ; Saffron, three drams ; Yolks of Eggs, N^o iij. Mix them, and make a Plaister according to Art.

The External Medicines ought often to be changed : Here is no need of *Suppuratives* ; for the Humors are easily corrupted of themselves ; in the place of which, the Eskar being separated, may be used *Ung. Fuscum* of *Felix Wurtz*, *Aegyptiacum*, and Honey of Roses, &c.

CHAP. XIII.

Of a Cancer.

A Cancer is a Tumor besides Nature, sprung from black Choler, round, hard, livid, painful, full of turgid Veins, resembling the feet of a Crab.

Difference.] Where not exulcerated, by the Greeks it is named *Carcinoma* ; when ulcerated, *Plagedana*, by the Greeks ; and by the Germans, *De Wolf*.

Signs ; In the beginning difficultly known, scarce equalling a Pea in bigness ; then sometimes increasing suddenly, sometimes slowly ; it makes

it self, by its grievous Symptoms, easily enough to be known: The Tumor is hard, painful, hot, livid or black, round with some inequality, full of swell'd Veins.

Prognostick.] A Cancer is seldom Cured by Medicines, often by Chirurgery, but not without danger; sharp Medicines exulcerate it: It is imprudence to attempt an occult Cancer, or that is detained in any Cavity of the Body, except it be very little, and may easily be taken away by Incision.

Cure.] Diet the same as in *Scirrhus*; frequent *Purging* convenient; be cautious in *Bleeding*, as also in Scarification. The Moneths flowing in Women, and in Men the Hemorrhoids, are very beneficial.

Externally, Suppuratives and strong Discutients are hurtful; the following, good.

Medicines in a Cancer.

Roots of *Arum*, Dropwort, Gentian, Figwort, Mullein; Leaves of Maidenhair, Housleek the greater, Agrimony, Tobacco, Plantain, Nightshade, Hounds-tongue, the Spawn of Frogs, of Whales, Burnt-Crabs, Burnt-Lead, Mans-Dung, Plaisters of *Diapompholigos*, of Lead, *Diafulpharis*, of Frogs with Mercury, Sugar of Saturn, Camphire.

For a Cancer not ulcerated.

Take the Juice of Plantain, Endive, Housleek the greater, Nightshade, Rose-Vinegar, Oyl of Myrtle, of each an ounce; Venice-Turpentine, two drams: Stir them together in a Leaden Morter, with a Leaden Pestle; adding of the Rinds of Pomegranates and Citrons, of each a dram; Bole-armenick, Burnt-lead, Camphire,
of

of each half a dram: Make it into a Linament.

For an Ulcerated Cancer.

Tak Galls, Pomegranate-Rinds, of each half an ounce; Burnt Talk, an ounce; Bole-armenick, half an ounce; Burnt Lead, two drams; Ashes of Crab-shells, a dram; Turpentine and Honey, as much as is sufficient: Make an Ointment.

By the use of these or the like Medicines, Cancers that are not Ulcerated, have been often Cured; and Ulcerated Cancers have been for many years kept in the same condition; but for the most part, the business is committed to Chirurgery: The Part affected being held by a pair of Forceps, is to be cut off by the help of a convenient Knife, but so that nothing of the Cancer be left behind, lest it bud afresh; others holding it only with their left hands, or passing a string quite cross, take it off by Incision.

Many with great praises extol prepared *Arsenick*, or *Mercury sublimate*; but its deeds answer not their words: its preparation *John Faber* in his *Myrotheico Spargirico* teaches.

The Quintessence of *Arsenick*.

Take *Cristalline*, *Arsenick*, with the like weight of *Salt-Peter*, and reduce all into the finest *Alchool*, and put them into a very strong *Glass Retort*, to which joyn a *Recipient* big and large enough; being well luted together; distil them with *Embers*, observing the degrees of the *Fire*, at first, gentle, at the end very strong and violent, until all the *Spirits* of the *Arsenick* and *Saltpeter* are gone forth: They ~~being come forth~~ and the *Vessels* cold, disjoyn the *Re-*

ent from the neck of the Retort, having great care of the Spirits that are within, which are venomous; suddenly stopping the mouth of the Receiver with a strong Lute, afterwards breaking the Retort, and that which is in the bottom, must be powdered, and put into a new Retort, and upon the Powder that is put into the Retort, the Spirits of Arsenick which was in the Receiver, is to be poured and distill'd again, being luted well, as at first: This is to be done three or four times till the Arsnick be well calcined with the Saltpeter; then lay the Arsnick upon a strong Tile, and for a whole day make a strong fire about it; so that which could not be Calcined by Distillation, may be Calcined and burnt by an open Fire: this Calx of Arsnick is to be dissolv'd in Distilled Rain-water, and the Solution so cleansed and depurated, from its Terrestrial Excrements, and by filtering made clear and limpid, is to be evaporated and dried, and calcined again with a very strong Fire, until it remits no Feces in the solution, but the whole Calx is dissolved, and the Water remains most clear and limpid; then the Water being Evaporated, it is to be dried. Then lastly, its above reserved Spirit is to be poured upon it, and mixt with it; but first it ought to be seven times rectified: You must make this Conjunction in a Matrace (a Glass Vessel so called, by reason of its roundness in the bottom, and long neck) and in a warm Balneum, till the Calx hath imbibed its Spirit; then in a Glass-Alembick, you shall separate by Balneum whatsoever of waterish Humidity can be separated, and there will remain in the bottom the Buttery Calx of Arsnick, of great virtue, which must be kept in a Glass-Vessel well stoppt.

Take some of this Powder, mix it with
Ba-

Basilicon, or a Digestive ; and thus mixt, apply to the Ulcerated Cancer.

CHAP. XIV.

Of a Gangrene and Sphacelus.

A Gangrene is a beginning-mortification of the soft parts of the Body, most commonly following a great Inflammation, or ill cured.

Sphacelus, Necrosis, Syderatio, is a perfect mortification not only of the soft, but of the hard parts also.

Differences.] In a *Sphacelus*, the parts are altogether dead ; but in a *Gangrene*, they begin but to die, and the sense is not perfectly abolished ; there the Skin is first pallid, suddenly livid, then black ; here in a manner red ; greater stink in *that* than in *this*.

The *Causss* of both are six. 1. The External cold of the Air, or Repelling Medicines. 2. *External heat*, from burning, or use of Corrosive Medicines. 3. *A Defect of Nutriment*, as in an *Atrophia*, either by the compression or obstruction of the Vessels, by reason of which straightness the Blood cannot pass to the Part. 4. *The stopping of the Pores, or Perspiration hindered*, from whence comes a Suffocation of the Natural heat. 5. *Malign Humor*, either begotten in the Body, or contracted from venomous Beasts, or Medicines. 6. The *Scurvy*, which by a peculiar property, causeth the Parts sometimes to mortifie.

Signs.] A *Sphacelus* is easily to be known, the Part looks black ; Spungy flesh ; sense, heat and pulsation abolish'd. But

But the *Signs of a Gangrene* vary according to the variety of the *Causes*: If contracted from cold, a great pricking pain is felt in the affected Part: First, 'tis red, then pale, at length black: The Natural heat by degrees is extinguished, and there happens a shaking, not unlike that in a Quartane Ague.

If caused from an *External heat*, or stopping of the Pores, the Redness is changed into White, then into Black; Pulsation and Pain cease; the Senses lessened; and at last there appear some Pustles, from whence issue a gleety Humor.

If from defect of *Aliment*, there is neither Pain, Inflammation or Tumor; the Body waxeth cold, and for the most part seizeth upon the Joynts.

If from a *venomous Creature or Humor*, great pain, and a Fever alwayes accompany it; frequent faintings, and oft-times *Deliriums*: Here ariseth a Pustle, under which appears a black spot, which spreads it self over the whole Part.

If from the *Scurvy*, it for the most part begins at the Toes, or shows it self outwardly with blackish spots and lines, which degenerates into a dry Crust, upon which follows a numbness of the Part, and at length a mortification it self, without any stink: Sometimes without pain, other times very great, especially in them that are given to passion or sadness.

Prognostick.] Except a Gangrene be suddenly stoppt, it degenerates into a *Sphacelus*; easilier cured in Young then Old People: The Humors continually flowing to the Part affected, bring danger with them, and that very great, if they are Malignant: In the Cavities of the Body, to wit, in the Mouth, Privy Parts, and Fundament, &c.

a Gangrene is alwayes difficult of Cure, as also that which happens among the Nerves and Tendons ; in Hydropicks alwayes mortal : That which happens from the Scurvie, may be spun out for many Moneths, but seldom cured.

A *Sphacelus* is not cured but by the Knife and Fire.

Cure.] Diet must be good, the Air, Meat and Drink generally cooling and drying : But seeing the Causes are various, we leave it to the Physitian to prescribe what is convenient ; who also must well distinguish concerning *Bleeding* and *Purging*, when to be used with advantage or disadvantage. Sudorificks and Cordials are of great use here ; and because that in this and other Diseases, they are often used, I thought it convenient to set them down in this place.

Diaphoreticks or Sudorificks.

Roots of *Angelica*, *Scorzonera*, Lovage, *Contrayerva* ; Herbs, Holy-Thistle, Fumitory, *Scordium* ; Harts-Horn, Unicorns-Horn, Bezoar, the Stone of an Indian Hog, called *Pedro Porco* ; Waters, of Threacle, Alexipharmick ; *Diascordium*, Threacle, Mithridate ; *Species Liberantis* ; Antimony, Diaphoretick ; Salts, of Wormwood, Prunella, Holy-Thistle, *Rob. Sambuci*.

Take *Diascordium Fracastorii*, one dram ; Alexipharmick-Water, two drams ; Holy-Thistle-water, as much as is sufficient ; Syrup of Limons, half an ounce : Make a Potion.

Cordials.

Waters of Roses, Borage, Bugloss ; Conserves, of Rosemary-flowers, of Roses, Violets and Borage ; Bezoar, Harts-horn, Unicorns-horn ; Confections of Alchermes, Hiacinthus ; Rob. of Red Currans,

of Barberries ; of *Scorzonera* Roots Candied, Citron and Orange-peels Candied, *Saccharum Perlatum*, Salt of Coral.

Take Water of Borage, Bugloss, of each two ounces and an half ; Alexipharmick-water, three drams ; Cinamon-water, two drams ; *Saccharum Perlatum*, half an ounce ; Confection of Hiacinth, half a dram ; prepared Crabs-eyes, two scruples ; Spirit of Salt, four drops : Mix them,

Let the Patient now and then take one or two Spoonfuls.

Externally, Cupping-glasses and Leeches, but chiefly Scarification must be used ; although there are some of our Chirurgeons, which altogether reject Scarification ; nevertheless happily curing their Patients by the following Medicines, which resist Putrefaction.

External Medicaments against a Gangrene.

Roots, of Angelica, round Birthwort ; Herbs, of Wormwood, Holy-Thistle, Tobacco, Rue, Colewort, Germander ; Flowers, of Elder, St. John's wort, Mellilot, Camomil ; Lye, Brine, Ink, Urine, Spirit of Wine, Threacle, *Ung. Aegyptiacum*, *Fuscum* of Felix Wurtz, Horse-dung.

Some mix Hemlock in Plaisters or Poultices, and use it with success.

Or,

Take the tops of Wormwood, Camomil, and Elder-flowers, of each half a handful ; Leaves of Germander, a handful and half ; Rue, half a handful, Crums of brown Bread, seven ounces ; Horse-dung, three ounces : Boil them in Brine, in the end adding to them, Ink, two ounces ; Spirit of Wine, three ounces : Make it into a Cataplasm.

The sound Part ought also to be preserved ;

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partly

partly by keeping the Humors from flowing, and partly by keeping the Gangrene from spreading :: for this purpose, the Red defensive Plaister, or the *Cerot of Virgo* is good; as also this following Cataplasm.

Take Bolearmenick, half an ounce; Powder of Galls, Cypress-nuts, Pomegranate-rinds, of each three drams; Barley-meal, six ounces; *Oxymell simplex*; as much as is sufficient to make it into a Cataplasm.

Or,

Take Seal'd Earth, Bolearmenick, of each half an ounce; Prepared Harts horn, a dram; Camphire, a scruple; Rose-vinegar, an ounce; Oyl of Mirtles, three ounces; White of an Egg; Make it into a Linament.

Cure of a Gangrene caused from Cold.

The part gangren'd, if not grown black, but as yet appears very red with pain; the Patient is to be placed at the fire, but not too near, but at a distance, that the heat by degrees may be again restored to the Part; and to that purpose, strongly rubbing it with Snow, or cold water; giving also to the Patient, *Treacle*, or *Mithridate*, in warm Wine. If the pain and cold remit, let the Part be embrocated very warm, with Oyl of *Dill*, *Camemil*, *bitter Almonds*, or *Earth-worms*, &c. a Decoction of congeal'd Turneps is good to foment withal; then are required both stronger and hotter Medicines, *viz* Oyl of Earth, of Tiles, Turpentine, Castor, Treacle-water, *Mithridate*; or use the following Fomentation.

Take Herbs of *Scordium*, a handful and half; Swallow-wort, a handful; Rue, half a handful; Seeds of Roman Nettle, Cresses, of each three drams:

drams : boyl them in White-wine, let them be strained, and to a pint of the Liquor, add Spirit of Wine, two ounces : mingle it.

When the Part hath begun to Mortifie, Scarifie, continue the use of the above prescribed Medicines.

Cure of a Gangrene from External heat, or hindred Perspiration.

Let the Cause of the Disease be removed if possible; which if it happens from *External Ligature, Hot, or too Astringent Medicines*, let them be forthwith removed from the part affected; and let it be washed, being first Scarified, with the following Decoction.

Take the Water of Endive, Night-shade, of each six ounces; of Sorrel-water, eight ounces; Vinegar, half a pint; Salt, an ounce and half; *Scordium*, a handful; Lupines, half an ounce; Mix them, and boyl them to the consumption of the third part.

Then let the Chirurgion use *Ung. Egyptiacum*, or any other of the above prescribed Medicines.

Cure of a gangrene from the defect of Nutriment.

Let the Patient use nourishing Aliments; all strong External, or Internal dryers, hurt; Friction of the Part with moderately hot Medicines, as with Oyl of Sweet Almonds, Olives, Earthworms, Scorpions, Vipers, Mans-fat, Bears, or Hens, is good. Scarifie if necessity require. Discussives here are very injurious.

Cure of a Gangrene from a venomous Humor.

If the Malignant Humor be in the Body it self, *Sudorifick, Cooling, and Cordial Medicines* are best; for Purging and Bleeding, I have seen them ofner to do hurt, than good.

Outwardly, Defensives are useless, but Cupping-glasses, Leeches, and attractive Medicines are necessary.

But if the *Malignant Humor* come from an external Cause, the surest remedy is an actual Cautery, lest the Malignity spread it self, which is to be used the very first time; and also to put a further stop, apply a Defensive to the sound Part, two fingers breadth distance from the wounded Part, so also it will put a stop to the Flux of Humors, or else all the hope consists in *Leeches, Cupping-glasses, Attractive Medicines*, and others set down above.

Cure of a Gangrene sprung from the Scurvy.

Internal Remedies we commit to the Physician; *Externally*, these are commended.

Take Seeds of Broom, Roman Nettle, Rue, of each a dram; Tops of Wormwood, two drams; Gum, *Galbanum, Ammoniacum*, dissolv'd in Vinegar, of each six drams; Oyl of Juniper, three drams; Wax, as much as is sufficient to make it into a Plaster.

Or,

Take Oyl of Earth-worms, Bayes, Rue, of each two drams; Castor, a dram; Spirit of Wine, three drams: Make it into a Linament.

Or,

Take the Raspings of *Guaiacum*, Sassafras, of each an ounce; Root of Angelica, Celandines the greater, Tamarisk-bark, of each six drams; Leaves of Scurvygrass, Water-cresses, of each a handful; Fennel-seeds, an ounce; Spirit of Wine, a pint and half: Infuse them a night, then distil them in *Balneo Maria*.

Foment the part affected with this, and scarifie, if there be occasion; and let the Chirurgeon proceed according to Art.

Where

Where a Gangrene hath degenerated into a *Sphacelus*, especially in the Joynts, let the Part be amputated; concerning which, look in the First Part.

CHAP. XV.

Of a Paronychia.

PAnariticum, or Paronychia, is a Tumor very painful, in the end of the Finger, from a sharp Malignant Humor, corroding the Tendons, Nerves, Pericestium, and Bone it self.

Cause is a sharp humor, proceeding from Choler or Serum.

Signs are, an intolerable pain about the Nail; tormenting the Patient day and night; an Inflammation, oftentimes extending over the whole Arm: A Fever for the most part, and sometimes *Delirium*.

Prognostick.] By how much the Humor is the more malignant, the greater Symptoms it raiseth, corrupting sometimes the Bone, the Finger, the whole Hand. and sometimes from extream pain, it occasions the death of the Patient.

Cure.] Foment the Finger a while in this Decoction.

Take Flowers of Camomile, Mellilot, Elder, of each half a handful; Linseed and Fenugreek, each two drams: Boil them in Milk.

Or, let this Cataplasme be applied.

Take Flowers of Dill, Elder, Leaves of Henbane, of each a handful; Poppy-seeds and Linseed, of each three drams; Marsh-mallow-Powder, an ounce and half.

K 3

Boil

Boil them in Milk, to the consistence of a Cataplasm.

Then make *Incision* upon the Part affected, according to the length of the Finger; and for the most part there appears one or more red spots, containing a sharp Matter, but little in quantity, which is the cause of the Disease.

After the Apertion of the Tumor, at the first dressing, apply to the Finger Threacle dissolved in Spirit of Wine, and a Defensive to the whole Hand; so in a day or two, the Cure will be perfected.

But if this Part should be gangren'd or Sphacelated, either by the neglect of Patient or Chirurgion, let it be taken off: Except you will commit the business to Nature, which oftentimes separates, and throws out this Bone. A great Inflammation sometimes here produceth a *Fleshy Excreescency*, occult and senseless; this is removed by Knife, or exuding Medicines: Then cure according to Art.

But if being too late call'd, you find a great *collection of Humors*, let Discussives or Suppuratives be applied; then the Tumor being either broke, or opened, take great care, lest the Tendons (which do very easily) putrifie, or incline to putrefaction: Separation is here necessary, whether it be by Medicines, or a cutting Instrument: Repellents in this case, greatly hurtful.

CHAP. XVI.

Of an Aneurisme.

Aneurisma is a Tumor besides Nature, from a Rupture of an Artery, continually beating, easily yielding to the Fingers, and as suddenly returning.

Cause] All Arteries, except those that are dispersed through the Brain and upper parts, consist of a double Tunicle; the inmost of which being either corroded or broke, the External may be extended so much (without a Rupture of it, whatsoever others say) as to cause an *Aneurism*: Nevertheless, where the Tumor is of the bigness of ones Fist, it cannot be but that the External also must be either corroded or broke. Anatomy doth confirm this Opinion, which the Studious in the Art of Chirurgery may enquire into.

This Tumor also may be caused, where an Artery be divided; so that the External Tunicle united to the Muscles; the Internal, by reason of the continual pulsation, remains open.

Signs] A swelling increasing by degrees, of the same colour as the skin; a continual Pulsation: If the Tumor be little, it easily yields to the Fingers, so that it altogether disappears, but suddenly returns again; but if great, not so easily yielding to the touch, not so strong a Pulsation: but there is a noise observed, as of boiling Water; yet in the Head and Jaw, I have found after death an *Aneurism*, which while the man was alive,

there could be no Pulse perceived: In the hard Parts is greater circumspection to be used, than in the soft and fleshy.

Prognosticks.] It is difficultly Cured; if great, not at all, except with the taking off the Member; for the most part it is a long Disease, although I have seen it kill, without any other accidental Cause, within two years: If Incision be made, Death suddenly follows.

Cure.] In the beginning there may be some hopes. *Astringents* and *Repellents*, and convenient *Ligatures*, by which we do not seldom administer something of Remedy to the Patient; as also the applying a piece of *Lead* straightly bound on, have sometimes Cured little *Aneurisms*.

But where the Tumor is increased, there are some would have the Skin divided, and the Artery tied both above and below, and cut out the middle with the Tumor, and loosen not the Ligatures till the Wound is perfectly cured, and there is no fear of an Hemorrhage; but this Operation is dangerous, painful and troublesome, and oft-times of little benefit: But to preserve Life, I would take off the Member.

CHAP. XVII.

Of Ophthalmia.

Ophthalmia is an Inflammation of the Membranes of the Eye from Blood, with redness, pain and shedding of tears.

Difference.

Difference.] A light Inflammation, and which depends from External Causes, is called a Bastard-*Ophthalmia*, *Taraxis* or *Epiphora*; but a great Inflammation accompanied with pain and tears, a true *Ophthalmia*. And if it be so great, that the Eye-lids are also inflamed, and as it were, turned inward, 'tis called *Chemosis*.

Causes are two. 1. Internal, as Blood, oft-times mixt with *Serum* or *Choler*; seldom with *Phlegm* or *Melancholy*. 2. External, as Smoke, Dust, &c.

Signs vary according to the variety of Causes: If it proceed from too great a quantity of *Blood*, the Face looks red, and the Vessels of the Eyes are extended: If either from more of *Serum* or *Choler*, the redness of the Face is less, but the Tears are more sharp, and the pain greater; if from more of *Phlegm*, the reddish pain, heat and acrimony of Tears are more remiss, and the Eye-lids at night are as it were glewed together: If from any thing of *Melancholy*, there are but few Tears, and the Eye-lids are not closed together, the Inflammation is not great, but stubborn.

Prognostick.] An *Ophthalmia* is slower cured in Children, then in Old people: Continual pain menaceth Blindness, by how much greater the Inflammation is, so much the more dangerous it is.

Cure.] The Diet must be the same as in a *Phlegmon*; all sharp things are carefully to be avoided; as, Garlick, Radishes, Mustard, &c. little or no Suppers profit: *Purging*, the use of Glisters, Bleeding ought to be oft-times reiterated; as also *Cupping Glasses*, *Leeches*, *Blisters*; sometimes also *Seatons*, *Issues*, and *Artereotomy* it self, which is not to be done by any but an expert Chirurgeon;

Snee-

Sneezing is hurtful; *Provoking of Sweat* is sometimes necessary, sometimes not; which the Physician must distinguish: *Diureticks* are of great use, provided they are not too hot.

External Remedies vary according to the variety of causes; if from *Smoke* or *Fire*, let them be extinguished.

If from *Dust*, or *any thing got into the Eyes*, 'tis to be taken forth, which is often performed by blowing, or by the spurting in of *Rose-water*.

If from the *inversion* of the *Eye-lids*; the hairs are to be cut off, or wholly to be pull'd out.

If the *Eye-lids* are *glued together*, they are to be separated, with *Butter*, *Beer* or *Cream*, the *Rheum* is gently to be wiped; and let the Patient have a care, lest by the rubbing of his Eyes, he increaseth his Disease.

Fat things are here hurtful: *Repellent Medicines*, except in the very beginning, are not to be used, or in a very slight *Ophthalmia*.

Medicines good for the Eyes.

Roots of *Valerian*, *Solomons-Seal*, *Orrise*, *Ver-vain*, *Herbs*, *Betony*, *Celandine the great*, *Eye-bright*, *Fennel*, *Fumitory*, *Plantain*: *Flowers*, of *Roses*, *Viola*; *Aniseeds*, *Quince-seeds*, *Linseeds*: *Pippins*, boil'd or rotten; *Camphire*; *Mussilage* of *Linseeds*, *Tragacanth*; *Fresh Veal*; *White of Eggs*; all sorts of *Milk*, especially *Womans*; *Tutty*; *white and green Vitriol*; *Saccharum Saturni*; *Glass of Antimony*; *White Troches of Rhasis*; *fresh Cheese* not salted; *Ung. Saturni*.

A Water for the Eyes.

Take *Waters* of *Eyebright* and *Celandine the greater*, of each an ounce and half; *White-wine*, six drams; *Glass of Antimony*, eight grains; prepared

pared Tutty, fifteen grains ; White Vitriol, two grains ; Sugar-Candy, two drams ; Camphire, four grains : Make it into a *Collyrium*.

Another excellent one.

Take Wheat, three handfuls ; Bruised Ginger, three drams ; Common Salt, a handful and half ; White Wine, Water of Roses, of Fennel, Plantain, of each ten ounces : Infuse them in a Copper-Vessel the space of forty dayes, strain them, and reserve the Liquor for your use.

Another very much esteemed.

Take a whole Egg, boil it hard, then the shell and Yolk being taken away, put into the Cavity, Sugar of *Saturn*, six grains ; Camphire, two grains ; White Vitriol, three grains ; Honey of Roses, half an ounce ; then press it very hard, and let the prest-out Liquor be dropt into the Eyes twice or thrice a day.

Another, second to none.

Take Waters of Fennel and Eyebright, of each a pint ; Common Salt, six drams ; prepared Tutty, white Vitriol, of each half an ounce : Let them boil a little, and reserve for use.

Let not the great quantity of Vitriol affright any ; it causeth only a slight pain, which suddenly vanisheth ; but 'tis of so great virtue, that it cannot sufficiently be extoll'd ; but its use will prove it true.

A Powder for the Eyes.

Take Dulcified Vitriol, half a dram ; prepared Tutty, fifteen grains ; Sugar-candy, a scruple : Make it into a fine Powder.

Unctious Medicines seldom are applied to the Eyes, or else this Oyntment is much commended.

Take

Take Verdigreece, twelve grains; Camphire; *Lapis Calaminaris*, of each half an ounce; prepared Tutty, half a dram; fresh Butter washed in Rose-water, two ounces: Make it into an Ointment.

An Anodine Cataplasme.

Take Camomile and Melilot Flowers, of each a pugil, rotten Apples, two ounces; Fenugreek-seed, an ounce; Crums of Brown Bread, three ounces; two yolks of Eggs, Saffron, half a dram; Boil them in Cows-milk, to the consistence of a Poulrice.

An Anodine Collyrium.

Take the Juice of Housleek, two drams; Whites of Eggs, half an ounce; Womens Milk, two ounces; Rose-water, an ounce; white Troches of *Rhasis*, one scruple; *Opium*, three grains: Mix them.

Another, which I have often found excellent in the greatest pain.

Take Gum Tragacanth, two drams; Muffilage of the Seeds of Fleawort, three drams; Rose-water, and Plantain-water, of each as much as sufficeth: Make it into a *Collyrium* of an indifferent Consistence; and let it be instill'd by drops into the Eyes, and Linnen Cloaths wet in it, outwardly applied.

CHAP. XVIII.

Of a Quinsey.

A Quinsey is a Tumor of the Jaws, from Blood, hindring Deglutition and Respiration.

Difference.] 'Tis divided into three species ; the first is called *Cynanthe*, when the Muscles of the *Larinx* are inflamed : the Symptomes here are very dangerous, although neither Internally nor Externally appear any Tumor ; the Patient puts forth his Tongue like a tired Dog, to fetch his breath. Second is *Synanche*, when the Tumor shews it self within the Jaws ; the Symptomes are likewise here great, but much less than in *Cynanthe*. Third is, *Parasynanche*, when the Tumor appears more Externally than Internally ; and in this the Symptomes are least of all.

Cause is Blood, for the most part mixt with *Serum* or Choler ; seldom with Phlegm or Melancholy.

Signs of an approaching *Quinsey*, are, a stiffness of the Neck, swallowing and breathing somewhat hindred, an unusual heat and pain in the Jaws, especially when Quinsies are Epidemick.

Signs of a present are, a suffocating Asthma ; swallowing hindred, which often increaseth to so great a heighth, that Drink taken in at the Mouth, comes forth again through the Nostrils, Pain, Redness, Tumor for the most part, also a continual Fever ; the Tongue likewise swell'd, and the Voice altered.

Prog.

Prognostick.] A perfect Quinsie never wants danger, but sometimes suffocates the Patient the first day, generally before the fourth: If the Matter be not suddenly concocted and thrown forth, it is desperate; if the *Vertebra's* be laxated, death is near at hand; foaming at mouth is a sign of present death; if the Patient be taken with a pain of the Head, a *Delirium*, raving and death it self suddenly follows.

Cure.] *Bleeding* in this case effects much, both by taking away of the Inflammation, and by hindering its increase, which is to be performed at first sight, therefore let the Median or Cephalick Vein of the side most affected be opened, though in Women with Child, then the Vein under the Tongue: *Cupping Glasses* with *Scarification* may also be applied to the Neck about the second *Vertebra*, Shoulders and Breast; *Leeches*, *Cauteries* and *Blisters* do much good, especially in them that are subject to Quinsie: In the mean time, if the Patient can swallow, let some purging Medicines be given him; if not, let a Glister be cast in, with Bleeding, which must be as often reiterated as occasion requires.

Gargarisms then, and other External Medicines are to be used; which in the beginning are to be more Repelling, afterwards more Discussing; for Experience, and best Authors have taught, 1. Repellents never are to be used alone, except in the beginning, and in a light Quinsie. 2. That Repellents ought alwayes to be mixt with Resolvents, for Repellents destroy the heat of the part; Resolvents cause Fluxion.

Medicines

Medicines in a Quinsie.

Roots of Marsh-mallows, Liquoras; Herbs, Comfrey, Myrtle, Prunella, Dandelion, Scabious, Plantain, Housleek the greater, Sage, Alehoof, Violets, Flowers of *Balaustians*, Red Roses, Saffron; the four cold Seeds, Poppy, the Rinds and Juice of Pomegranates; Figs, *Album Græcum*, Burnt-Swallows, Burnt-Allom, Swallows Nests, Syrups of Maidenhair, Violets, Purslane, Jujubies, Scabious, Lungwort, Honey of Roses, *Rob. Diamori*.

A Repellent Gargarism.

Take Flowers of Red Roses, *Balaustians*, of each two pugils; Pomegranate-Rinds, half an ounce; Oak-leaves, a handful; Burnt-Allom, half a dram: Boil them in Smith's water, and add to a pint of the Liquor, two ounces of *Rob. Diamori*: Mix them.

Another very convenient in the beginning of the Disease.

Take leaves of Dandelion, two handfuls; Alehoof, Violets, of each half an handful; boil them in Barley-water, and to a pint of the strained Liquor, add of common Honey of Roses, and strained, of each an ounce and half; Spirit of Vitriol, 15 drops: Mix them.

A Repellent, and somewhat Dissolutive Gargarism.

Take Liquoras, Pomegranate-Rinds, of each

two

two drams, Balauſtia Flowers, a pugil; *Jujubies*, N^o xij. Figs, N^o iij. Raiſons, ſix drams; boil them in Barley-water. To a pint of the Decoction, add of common and ſtrained Honey of Roſes, Syrup of Maidenhair, of each an ounce: Mix them.

A Gargarism greatly Repelling, but ſtrongly Diſcuſſing.

Take the Roots of Dwarf-Elder, Orrife, of each two drams, Flowers of Camomil, a pugil; Red Roſes, Hyſop, of each two pugils, Dates, N^o iij. Figs, N^o vj. Fenugreek ſeeds, two drams; *Album Gracum*, one dram: Boil them in Turnep-Broth. Add to it Syrup of Maidenhair, and *Jujubies*, of each an ounce: Mix them.

If the pain be very great, boil them in new Milk, chiefly in Goats.

External Medicines for a Quinſey.

Oyl of Nuts, White Lillies, Almonds, Camomile, Dill, Capons-greaſe, Hogs-greaſe, Oyntment of Maſh-mallows, Plaſter of *Mucilages*, Dogs and Pigeons-Dung, Swallows Neſts.

Take Roots of Maſh-mallows, White Lillies, of each an ounce; one Swallows Neſt, Figs, Dates, of each N^o iij. *Album Gracum*, half an ounce: Boil'd Onions, half an ounce: Boil them in Barley-water, and to a pint of the ſtrained Liquor, add of Wheat-meal and the Powder of Linſeed, of each an ounce; Fenugreek and Maſh-mallows powdred, of each two ounces and a half; Yolks of two Eggs, Eaſtern Saffron, two drams; Oyl of Camo-

Camomile; two ounces and a half: Make it into a Cataplasm.

Take Juice of Onions, two ounces; Oyl of White Lillies, Orrise, of each an ounce and half; boil them a little, adding to them of Swallows-Nest, a dram; Pitch and Wax, as much as sufficeth to make it into a Plaister.

But if the Tumor tends to Suppuration, 'tis to be forwarded, and then to be opened either by Medicines or Launcet.

A Suppurating Cataplasm.

Take Roots of Briony, white Lillies, Orrise, of each three drams; Leaves of Pellitory of the wall, a handful; Camomile-Flowers, half a handful; Onions, an ounce; Figs, N^o xij. Boil them and bruise them, adding of the Powder of Fenugreek-seed and Linseed, of each two ounces; Hensgrease, an ounce; Oyl of Camomile, two ounces: Mix them.

A Suppurating Gargarism.

Take Roots of white Lillies and Liquoras, of each three drams; Onions, half an ounce; Raisons ston'd, an ounce; Figs, N^o vj. Linseed and Fenugreek, of each two drams; Leaves of Mal lows and Coleworts, of each half a handful; boil them in Barly-water, and to a pint of the strained Liquor, add of Syrup of Maidenhair, two ounces: Mix them.

And to make the Abscess break, add to this Gargarism.

Take Mustard seed, two drams; Roots of Pellitory of Spain powdered, one dram; Saffron,

fron, a scruple ; Oximel simple, an ounce : Mix them.

But if it doth not forthwith break by these Medicines, 'tis to be opened by a Launcer, or some other Instrument ; afterwards using Emollient Gargarismes, and somewhat absterfive.

The End of the first Book of the second Part.

BAR-



BARBETTY'S CHIRURGERY.

The Second Book of the Second Part
of CHIRURGERY.

Of Wounds.

CHAP. I.

*Of the Nature, Differences, Causes, and
Signs of Wounds.*



A wound is a solution of continuity in the soft parts of the Body, from a hard Instrument, causing an abolition or diminution of action.

Differences are taken, 1. From the Form; some are long, others oblique; some are little, others great; some are deep, others superficial. 2. From the wounded Part, as, the Head, Lungs, Heart, Stomach, Liver, Spleen, Guts, Nerve, Tendon, Vein or Muscle; sometimes the Skin is only penetrated, then 'tis a simple Wound; sometimes a part of the flesh is

L 2

taken

taken away, and then 'tis call'd a compound or hollow wound. 3. From the Causes, which shall presently be set down; sometimes a wound happens to be poisoned, and to have many Symptoms joyned with it.

Causes are five-fold, viz. 1. All things that *cut*, as a Knife, Sword, Glass. 2. All things that *prick*; as Needles, Arrows, Teeth. 3. Which *perforate*; as hot Iron, Bullets. 4. Which *break*; as a Fall, Stroke, or the carrying or lifting of any great Burdens. 5. All things which *contuse*; as a Stone, Stick, &c.

Signs.] External Wounds are of themselves manifest enough; but those of the Internal parts, are not alwayes so easily judged of; these therefore are to be known by Anatomy; 1. What is the situation of each part. 2. What the use. 3. The Symptoms are to be considered. 4. The Quality of those things are to be noted, that Nature ejects through the Wound: The other Signs you shall have in their proper places.

Prognosticks.] To know the events of Wounds, especially to predict which are Mortal, which not, is a thing absolutely necessary for a Surgeon: For from this judgment oft-times depends the Life of unfortunate man.

A mortal Wound is that, which in the space of few hours or dayes, of necessity causes Death, and cannot by any Art be cured.

For those that in themselves are curable, yet by reason of ill Symptoms, or through the neglect either of the Patient or Chirurgeon, do occasion Death, ought not to be accounted mortal Wounds: Incurable Wounds themselves are not to be called mortal, if they are not the cause of Death suddenly

to the Patient; but that he not only lives many weeks, but oftentimes many years after.

1. Among the wounds that are mortal, are to be accounted the wounds of the Brain, but not all of them; for experience hath taught us, that part of the Brain hath been taken forth, and the Life preserved, though the Understanding lost.

Therefore those wounds of the Brain that be absolutely mortal, are, 1. *When besides the Brains, a Nerve is also wounded.* 2. *When Blood, or some other Humor obstructs the beginning of the Nerves:* 3. *When after a few dayes the concrete and putrified Blood produceth a Fever, Delirium, and Death it self.*

By concremented Blood, I understand not that which lies between the *Dura Mater* and the Skull; for that is to be taken forth by the Trepan, and the Patient this way may be preserved; but that which is included between the *Dura* and *Pia Mater*, or between the *Pia* and the Brain: Although sometimes, that which is detained between both Membranes, by the dividing of the *Dura*, may be taken forth, and so the Patient preserved.

2. The Wounds of the Spinal Marrow are also mortal, which happens in the Neck, or nearer to the Head; but those which happen lower, as about the *Os Sacrum*, are of lesser danger.

3. The Wounds of the Lungs are mortal, if great and deep, where the great Vessels, or the Branches of the *Aspera Arteria* are hurt: Where the Vessels are divided, there follows a great effusion of Blood; where the Branches of the *Aspera Arteria*, the Breath comes forth more through the Wound, than the Mouth.

4. Wounds of the heart are alwayes mortal;

for though one or two wounded in the heart, have lived, two, three, or four dayes, it was never found yet, that ever any escaped.

5. The Wound of the Wind-pipe may be cured, if the Membranes only behind, to which the Cartilaginous Rings are joyned, be hurt; but if the Rings themselves are wounded, there's no cure to be expected; yet sometimes those wounds being a lingring death; so that I have seen one so wounded, live eighteen weeks before he died.

6. Wounds of the *Diaphragma*, those that are inflicted in the fleshy part of it, are curable; but those that are in the Nervous part, though these alwayes occasion not sudden death, yet 'tis impossible ever to cure them.

7. Wounds of the *Stomach* are sometimes cured; those chiefly being mortal, that happen in the upper Orifice, or in Nerves that are distributed over the Stomach.

8. The wounds of the *Small Guts* are seldom cured, but the wounds of the *great Guts* much oftner, especially if they are not great.

9. Wounds of the *Liver* and *Spleen* are mortal, where the Vessels themselves are wounded; where not, they may be cured.

10. Wounds of the *Kidneys* are not mortal; if the wound penetrate into the Cavity it self, for the most part an Ulcer follows, which consumes the whole Kidney, yet the Patient may continue many years: If the *Paranchyma* only be wounded, sometimes, through difficulty, it may be cured.

11. Wounds of the *Bladder* are seldom so perfectly cured, but that for the most part there remains a Fistula; but those that are made at the neck of the Bladder, are daily cured.

12. Wounds of the great *Veins* and *Arteries* are often mortal; but every Surgeon understands not rightly to bind up such Wounds; therefore the cause of death is not alwayes to be cast upon the guilty.

13. Wounds of the great *Nerves* are for the most part incurable, and sometimes mortal.

14. Wounds from *poisoned Instruments* or *Creatures*, generally are mortal.

Wounds of *Nerves*, *Veins*, *Tendons* and *Membranes*, are more difficultly, and longer of Cure, than those of the fleshy parts.

A wound from a pricking Instrument, is of less danger, than from a bruising.

A Nerve, Vein or Artery, if wholly divided, are less dangerous, than if they were but in part.

A great Inflammation coming upon a great Wound, is of no great danger, except it continue too long; but a great Inflammation falling upon a little Wound, is an ill sign.

The Inflammation for the most part vanisheth by the fifth day; therefore if the Wound then appear white, livid or black, 'tis not void of danger.

A Fever, Vomiting and Convulsion, are dangerous; but a Fever and Vomiting of less danger than a Convulsion.

CHAP. II.

Of the Cure of Wounds in general.

Here are required four *Intentions* : 1. *To preserve the strength and native heat of the wounded Part.* 2. *To remove the Symptoms.* 3. *To endeavour that nothing remains, or be left behind in the Wound.* 4. *That the gaping lips of the Wound be joyned together ; and being so joyned, be kept.*

CHAP. III.

Of the preservation of the strength and Native heat in the wounded Part.

Chirurgery removes the impediments of Cure, but Nature her self cures the Disease ; which it will scarce effect, where the Native heat is weak, or the Blood vitiated ; or where it flows in too great or too little quantity to the Wound : in flowing in too great quantity, it produceth an Inflammation, Pain, Putrefaction, and many other Symptoms ; where, in too little quantity, the Wound is robbed of its Natural Balsam, necessary to consolidate it.

The natural strength and native heat is preserved by a convenient Diet, fitted to the temperament of mans Body in general, and in particular, to the Part affected. Of the Diet of the Sanguine,
Cho-

Cholerick, Phlegmatick and Melancholick, we have treated of before, when we spoke concerning a *Phlegmon*, *Erysipelas*, *Oedema*, *Scirrhus*.

Then care is to be had of the *Blood*, seeing it affords assistance to the matter, and serves to unite the wound. *Where it is vitiated*, it requires purging: But if it flow in too great quantity, Intercipients, Repellents, Revellents and Derivation must be used.

If it flow in too small quantity, Aliments that nourish, are convenient, as also Medicines that strengthen, and that move Sweat: Outwardly, gentle Frictions and Embrocations moderately hot.

Then the Cure is to be perfected by External Medicines; which shall be declared in the following, when we speak of the removal of the Symptoms, and the Cure of Wounds themselves.

CHAP. IV.

Of the Symptoms of Wounds.

THE chief Symptoms of Wounds are, 1. *A Fever*, whose Cure we commend to the Physician. 2. *A Phlegmon* or *Inflammation*. 3. *An Erysipelas*. Of the Cure of both which, look in the second and third Chapter of the first Book. 4. *Hemorrhage*, which not only impedes the Cure, but also deprives of strength and life it self; therefore great care is to be taken that it be stopped as soon as possible, which in the greater Vessels, especially the Arteries, is very hard to do; therefore those wounds are for the most part mortal: for Medicines that stop Blood are too weak, and hard

Liga-

Ligatures occasion a *Gangrene*; the surest way therefore in my opinion, is an actual *Cautery*; the lesser Vessels may and will close, Some close the Wound of the Vessels with their Fingers, and so hold them there while the Blood is coagulated, and the Flux stopt; but this Operation seldom succeeds: besides the long holding of the Finger in the Wound is hurtful.

Therefore let the Wound together with the Vessels be forthwith closed by the Fingers, but if you cannot come to do this, outwardly make a compress upon the Vessel; which done, wipe away the Blood with a Sponge, then sprinkle some restrigent Powder; but not over the whole Wound (which is used to be done by the ignorant) but only upon the the Vessels; then bind up the Wound, continuing the use of the Medicines stopping Bleeding, while there appears no longer any Blood; not neglecting in the mean time, Generals, viz. Scarification and Bleeding, &c.

Medicines that stop a Flux of Blood.

Roots of Bistort, Cinquefoil, Tormentil, Comfrey the greater, Red Saunders, *Lignum Lentisci*, Pomegranate-rinds, Mastick, Talk, *Acacia*, Dragons-Blood, Amber, Sarcocols, Frankincense; the hairs of a Hare, *Os sepie*, Burnt-Crabs, Whites of Eggs, Mummy, Cobwebs, red Coral, Chalk, Bloodstone, Bole-Armenick, Aloes succotrine, Frogs dried and powdered, crude Vitriol, burnt Vitriol.

Take fine Meal, three ounces; Dragons-Blood, Frankincense, of each an ounce and half; Bole, Sealed Earth, of each two drams, Talk, six drams;

drams; dried Frogs, an ounce; Hares hair cut very small, a dram and a half; Whites of Eggs dried in the Sun, and powdered, half an ounce; New Sponges torrified, an ounce; white Vitriol, a dram: Mix them, and make them into a fine Powder.

5. *Pain*; which must of necessity be eased, because it creates watchings, and defects the Spirits, and is cause of the Flux of Humors to the Party affected, and of Inflammation, Fever and Gangrene; but the Causes are diligently to be considered: For if either *Medicines that are sharp, or too hot*, occasion it, they are presently to be altered: 'Tis better to confess an Error, than pertinaciously to persevere in it.

If any foreign Body remains in the Wound, it must be drawn forth.

If pain comes from the choaking in of the Matter, you must allow it a free passage.

If an Inflammation be the cause of it, its Remedies are set down in the second Chapter of the first Book: You must apply to the Wound those things which ease pain, and are anodine; as Oyl of Roses, Linseed, Camomile, Worms, sweet Almonds, Poppies, &c.

Take Oyl of Roses, of Poppy-seeds, of Camomile, of each an ounce; the White of an Egg, Saffron, a scruple: Mix them.

But if the pain cease not with these or the like Medicines, it is a sign that some Nerve is wounded, or affected by consent: The Cure shall be set down in the following.

6. *Convulsion or Spasm*; this shews the Malignity of the Humor, or the ill constitution of the Nerves, neither of them promising any good:

Here

Here must be used both Internal and External Medicines appropriated to the Disease; the Internal, by reason of the diversity of causes, we commend to the Physitian.

External Medicines for a Convulsion.

Balsam of *Pern*, the fat of Geese, Castor, Foxes, Rams, Mans; Horse-dung, Oyls of Juniper, Lavender, *Ol. Philosophorum*, Amber, Turpentine, Rue, Marjoram, Worms, Castor, Orrise, Bayes, *Petraleum*; Ointments of *Agrippa*, *Martiatum*, *Ung. Nervorum*, Spirit of Wine.

Take Oyl of Snails, Worms, Sefamin, of each an ounce; of the Grease of Rams and Foxes, of each half an ounce; fresh Butter, six drams; Spirit of Wine, three ounces: Let them boil till the Spirit be consumed; then add Oyl of Spike distilled, Rosemary, Amber, of each two drams; Mix it into an Ointment.

Against a Convulsion there cannot a better Remedy be invented than distilled Oyl of Lavender, some few drops being given in some convenient Liquor; and anointing well the convulsed part.

7. *Hypersarcosis*, or too great increase of flesh; which if it happens from abundance of Blood, the flesh is solid, and otherwise well conditioned; but if from the too weak quality of drying Medicines, it is spongy; of the same nature, as when the Bone underneath is rotten. In the former case, Bleeding is convenient, and sometimes fasting, and the use of strong drying Medicines: In the latter, the Medicines must be very strongly drying that are applied: Deterfive and Corroding Remedies are here good.

Medicines

Medicines against too great increase of Flesh.

Burnt Sponges, Burnt Alom, Galls, Aloes, the Bark of Frankincense, Tutty, Verdigrease, burnt Vitriol, *Pracipitate*, Arsenick.

A green Corrosive Water.

Take crude Allom, Verdigreace, of each two drams; boil them in eighteen ounces of white Wine, to a wasting of the fourth part; strain them, and add Camphire, a dram: Mix them.

A Powder very drying, and somewhat corroding.

Take Galls, Balauftians, burnt Alom, Frankincense, Myrrhe, of each a dram; Dragons Blood, Ceruse, Verdigreace, of each half a dram: make it into a Powder.

8. A Gangrene and *Sphacelus*, concerning which, look in the fourteenth Chapter of the first Book of the second Part of Chirurgery.

CHAP. V.

Of the drawing forth Extraneous Bodies out of the wound.

NO Wound ought to be joyned together, as long as any Extraneous Body remains in it; for otherwise, after some little time it will break out into an Ulcer: The Blood, by which Nature unites the divided parts, if it flow in great quantity

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tity to the wounded Part, and there coagulates, 'tis to be removed by expression, sucking it out, or by any other way; for so there will be less Matter generated, and the Symptoms fewer; but where an Hæmorage is feared, all the Blood is not to be cleansed away.

Where *Hairs* are about the Wound, they are to be removed.

If *Sand*, or any such like thing remain within the Lips of the Wound, they are to be washed away with warm wine.

Broken Bones, if loose, are to be taken away the first dressing, except an Hæmorrhage hinder; but if they yet stick to the other Bones, then Nature's endeavours are to be expected. and see whether they will be united again to the other Bone, or separated from it.

If a piece of *Glass*, *Thorn*, *Arrow* or *Bullet*, or any like thing remains in the Wound, 'tis forthwith to be taken forth; but before the Chirurgion goes about to draw them forth, let him consider well, whether the Patient, that Extraneous Body being extracted, can live or not; lest the Chirurgion be thought to have occasioned the Patient's death.

Of the manner of Extracting Bullets, we have treated before; and Arrows are to be drawn forth almost after the same manner; but they are not in use at this day among Christian Soldiers: But if neither with the Hand nor Instruments, what remains in the wound can be drawn forth, then you must endeavour it with Medicines indued with an extractive quality.

Medicines

Medicines drawing forth Thorns, Bones, Bullets, &c.

Roots of Aron, Birthwort, Bastard Dittany, Masterwort, Polypody, Radishes, Valerian: Herbs, Southernwood, Pimpernel, Anemone, Red-Beet, Dittany: Gums, *Ammoniacum*, *Galbanum*, *Sagapenum*, *Succinum*, Pitch, the Brains and Grease of Hares, Crabs, a live Mouse cut in two, Common Flies, Earth-worms, Burnt Frogs, Goose-dung, Load-stone, Leaven, Plaister of Opodeldoch.

Take Roots of round Birthwort, Dittany of Crete, of each a dram and an half; Rosin of the Pine, Colophony, of each six drams; yellow Amber, three drams; Gum *Ammoniacum*, Appoponax, of each an ounce; Pigeons-dung, three drams; Oyl of Bayes, half an ounce; Turpentine and Pitch, as much as to make it into a Plaister.

CHAP. VI.

Of the manner of joyning the Lips of wounds together.

THe Lips of the Wound are joyned together, either by Ligature or Stitching. *Ligature* is convenient in wounds made according to the length of the Member, and not deep; let the Bandage be neither too hard, nor too loose, and of that breadth that it may take in the whole wound.

wound. If it be a long wound, the Rowler must be three fingers broad, and laying the midst of it upon the wound, rowl one part upward and the other downward; which must neither be too loose, for then it will not keep the lips of the wound together; nor too straight, lest it cause an Inflammation: In the Winter the Rowlers must be of greater length than in the Summer: In great wounds, besides Rowlers, the Surgeon stands in need of Boulsters.

Stitching is performed either by *Needle* or *sticking Medicines*. It is requisite that the Chirurgion never be without a Needle; for by it he frees his Patient from pain, the wound from inflammation, and himself from many inconveniencies; and the wound so requiring it, let him take a three-pointed Needle, with a waxed Thred, which let him pass through the skin, and sometimes also through the subjacent flesh, taking care that the Tendons be not prickt; and also that the stitches be not too few nor too many; but keeping such distance between each, that the skin may be drawn together, and the edges themselves joyned, leaving a little part for the putting in of a Tent, that may give passage to the superfluous Matter: These Tents are not necessary in little wounds; and in great, they must neither touch the Nerve or Tendon, nor reach to the bottom of the wound.

Where Ligature is not sufficient, and a stitch with a Needle not convenient, the sticking Plaister is very necessary; for so firmly doth this Plaister adhere to the wound, that neither the matter flowing out of the wound, nor the Blood, nor any other moisture loosens it: Oftentimes in this case is
used

Medicines necessary for curing of Wounds. 161

used the *Stiptick Plaister* of *Crollins*, or *Paracelsus*, but this sticks more firmly.

Take *Sarcocols*, *Bole*, *Mastick*, *Dragons-blood*, *Rosin* of the *Pine*, of each a dram; *Gum Tackmahack*, a dram and an half; *Naval-pitch*, as much as sufficeth: Make it into a *Plaister*.

CHAP. VII.

Of Medicines necessary for the Curing of Wounds.

Medicines necessary for the Cure of Wounds, are of three sorts: 1. *Digestives*, or moving matter. 2. *Sarcoticks*, or generating flesh. 3. *Epuloticks*, or inducing a *Cicatrice*.

Experience hath taught, that a wound may be cured oftentimes only by *Digestive* or *Sarcotick* Medicines; but this is better, and more certain, when they both are mixt together: In the fleshy parts, *Digestives* may alone serve; but in *Tendinous*, *Nervous*, *Membranous*, or other drier parts, *Sarcoticks* are convenient, either alone, or mixt with *Digestives*.

Digestives.

Common Oyl, *Oyl of Roses*, *Mastick*, *fresh Butter* and *May-Butter*, *Gum Elemny*, *Turpentine*, *Frankincense*, *Mastick*; the *Flower of Wheat*, *Barley*, *Fenugreek*, *Yolks of Eggs*, *Honey*.

Take *Oyl of Olives*, two ounces; *yellow wax*,
M half

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half an ounce, Frankincense, Mastick, of each a dram; the yolk of an Egg, fresh Butter, as much as is sufficient: Make it into an Ointment.

Sarcoticks.

Roots of Birthwort, Orrise, Sanicle, Comfrey the greater; Herbs, Betony, Centaury, Comfrey, St. Johns wort, Pimpinel, Plantain, Scabious, *Scordium*, Vervain; of Seeds, Beans, Fenugreek, Linseed, Barley; Frankincense, Aloes, Bole, sealed Earth, Colophony; Gums of Elemny, Pine, *Laudanum*, Mastick, Myrrhe, Dragons Blood, Sarcocols, Turpentine, Tragacanth; Wax, Honey, Mummy, *Cadmia*, Ceruse, *Lapis Calaminaris*, Litharge, Burnt Lead, Phomholix, *Lapis Hematidis*; Oyls of St. Johns wort, Bayes, Mastick, Myrrhe; Ointment, *Anreum*, *Basilicum*, *Fuscum*, of *Eelix Wurtz*, *Diapompholigos*; Plaisters, *Stipticum* of *Crollius* and *Paracelsus*, *Oppodeldoch*, of Betony, *Dia-sulphuris* of *Rulandus*; *Balsoms*, of *Pern*, of *Crollius*, of *Magatus*, *Aqua vite*; the fat of Geese, Foxes, Bears, Goats, Mans.

An Excellent Vulnerary Balsom.

Take Turpentine, half a pound; Gum *Galbanum*, Elemny, Ivy, Frankincense, Mastick, Myrrhe, of each an ounce; Aloes, Xyloaloes, Galanga, Cloves, Cinamon, Nutmegs, Cubebs, of each half an ounce: Infuse them four and twenty hours in a sufficient quantity of Spirit of Wine; distil them and preserve the Oyl for your use.

Another.

Take Oyl of Violets, eight ounces; of Bayes,
an

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an ounce; Oyl of Venice-Turpentine, half an ounce; of Spike distill'd, of Junipers, Verdigreece, of each a dram; Rosin of the Pine, Turpentine, Colophony, Mastick, of each half an ounce; white *Calcanthum*, a dram and half: Boil them a little, then strain them for your use.

Another.

Take Flower of Brimstone, three ounces; Mirtle, three drams; Camphire, one dram; Venice-Turpentine, five ounces: distil them, and preserve the Oyl for your use.

A Valnerary Plaister.

Take the Roots of round Birthwort, and Comfrey the greater, of each half an ounce; *Mummy*, *Colophony*; Aloes, Mastick, Dragons-blood, Litharge of Gold, *Tutia*, of each two drams; Gum Elemne, two ounces; Turpentine, as much as sufficeth to make it into a Plaister.

Another most excellent both in old and new Wounds.

Take Gum *Galbanum*, ten drams; *Ammoniacum*, three ounces and an half; *Oppoponax*, an ounce; *Bdelium*, three ounces: Yellow Wax, twenty ounces; *Olebanum*, three ounces; Litharge of Gold, a pound; Myrrhe, ten drams; Verdigreece, Mastick, Roots of long Birthwort, of each an ounce; Loadstone, two ounces; prepared *Tutia*, *Lapis Calaminaris*, of each two drams; old oyl of Olive, a pint and half: Dissolve the Gums in Vinegar, and let the rest be powdered; mingle them according to Art, and boil them in to the form of a Plaister.

Epulotick or drying Medicines.

Roots of Comfry, Tormentil; Herbs St. Johns-wort, Plantain, Sanicle, Flaellin, Betony; Flowers of Balaustians, Red Roses; Saunders, Aloes, Myrrhe, Mastick, Sarcocols, *Lapis Calaminaris*, red Lead, Lead, Litharge, Tutty; Ointments of *Diapompholigos*, *Album Camphoratum*; Plaisters, *Gryseum de plumbo*, *Opodeldoch de Minio*, *Barbarum*.

Take Oyl of Roses, of unripe Olives, of each three ounces; of Myrtles, Ointment of Poplars, of each an ounce and half; Leaves of Plantain and Nightshade, of each an handful; let them steep together eight dayes: afterwards add to the strained Liquor, Wax, two ounces; mingle them over the fire, adding Litharge of Gold, three ounces; Ceruse, an ounce; Tutty, a dram; Burnt Lead, three drams; Burnt Brass, a dram and an half; Camphire, a dram: let them be rubbed in a Leaden Morter into the form of an Ointment.

Take Roots of Tormentil, Bistort, round Birthwort, burnt Egg-shells, Frankincense, Dragons-blood, of each half an ounce; *Lapis Calaminaris*, a dram; Litharge, two drams: Make it into a Powder.

Take *Ung. Pompholigos*, *Diapalma Grisei*, of each an ounce; Gum Elemne, two drams; *Saccharum Saturni*, half a dram; Wax, as much as sufficeth to make it into a Plaister.

I never knew any better Medicine, if applied in a fitting time, to bring to a Cicatrice, than an *Amalgama* of *Mercury*, of which, this is the description.

Take

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Take two ounces of Lead, melt it, then add to it two ounces of Quicksilver, pour it upon Paper dried and powdered; it may be mixt with the Plaister of Lead or *Diapompholigos*.

To these External Remedies, we joyn also Internal Medicines, which have been observed to profit much at all times in the Cure of Wounds.

Vulneraries.

Wintergreen, Sanicle, Ladies Mantle, Comfrey, Mugwort, Saxifrage, Tormentil, Agrimony, Milfoil, Horse-tail, Hounds-tougue, Betony, Periwinkle, Mouse-ear, Golden-rod, Birthwort, Bistort, Dictany, Centory the less, Gentian.

A Wound-Drink.

Take Roots of Comfrey the greater, half an ounce; of Wintergreen, two handfuls; of Sanicle, two pugils; Strawberries, Ladies-Mantle, Sage, of each an handful; boil them in red Wine, and to a pint and half of the strained Liquor, add of the whitest Sugar, as much as is sufficient. Dose, three ounces.

Another very effectual, even when the Bone is hurt.

Take Roots of round Birthwort, an ounce and half; Sowbread, an ounce; Self-heal, Crane-bill, of each an handful; Savin, three drams; Mummy, two drams; Crabs-eyes, half an ounce; Galangal, two drams, powdred and cut: boil them in red Wine, and to three pints of the strained Liquor, add of the Syrup of Comfrey, of *Fernelius*, four ounces; mingle them. Dose, two ounces.

If any desires an Ointment, that many boast is able to cure the wound though the Patient be absent ; this is its best description.

A Sympathetick Oyntment.

Take Moss, two ounces ; Mummy, half an ounce ; Mans fat, two ounces ; Mans blood, half an ounce ; Oyl of Linseed, two drams ; Oyl of Roses, Bole, of each an ounce : Mix it, and make an Ointment.

Some use only Vitriol calcin'd in the Sun ; but whosoever shall use them without superstition, shall find many things attributed to Medicines, that are due to Nature ; therefore 'tis safest to proceed in the beaten way.

CHAP. VIII.

Of Wounds of the Nerves.

IN Treating of the Wounds of the Nerves, we also comprehend those of the Tendons ; because there is scarce any difference in the Cure it self.

'Tis to be distinguished here, where the Nerve or Tendon be divided, or only prick'd.

This Wound is known, 1. By considering the wounded place, and by Anatomy, which teacheth in what Members the Nerves are inserted ; but the Tendons seeing they terminate near the Joynts, the Hands and Feet having many ; if a Wound should be inflicted in those parts, who would not fear them to be so hurt, especially if it be with a transverse

verse wound. 2. From the great pain, which causes Pulsation, Inflammation, Convulsion and *Delirium*, &c. except the Nerves be wholly transversely divided, and then the Symptoms are altogether not so grievous.

Prognosticks.] All the wounds of the Nerves are dangerous; a Puncture more dangerous than an Incision: Wounds of Tendons are less dangerous than Nerves. Convulsion is an ill sign; Nerves and Tendons wounded, do easily putrefie.

Cure.] In all Wounds of Nerves or Tendons, seeing pain greatly molests, occasioning many Symptoms, care is to be taken that it be *alleviated* as soon as possible. Outward cold things do here hugely injure, not only the Air, but Medicines themselves: For experience hath taught us, that cold, moist and astringent Medicines do nought but hurt; therefore 'tis best to use Medicines moderately hot and drying, but void of any sharpness. The Wound also is to be kept open till the Cure be absolutely performed, that the Matter may flow freely forth, which if kept in, may increase the pain, and cause the putrefaction of the Nerve; which, if it should happen, the corrupt Part is to be cut off, or removed by an actual Caustery.

Moreover it is to be observed, whether the Nerve or tendon lies bare or not; if bare, warm Medicines are convenient; but if covered, hotter Medicines are required; in the mean time, Purging and Bleeding are not to be neglected.

External Medicines in Wounds of the Nerves and Tendons.

Old Oyl of Olives, of Earth-worms, of Dill,
M 4 Rue,

Rue, Rosemary, Costmary, White Lillies, *St. Johns-wort*, Castore, of Turpentine, Wax, Lavender, Balsom of *Pern*; Gums, *Elemi*, Tacamahac, *Caranna*, *Opobalsamum*, *Capayva*, Spirit of Wine.

Take *Venice-Turpentine*, Tears of the Fir-tree, of each an ounce; Gum, Tacamahac, half an ounce; of *Caranna*, two drams; Balsom of *Pern*, three drams; *Propoleos*, six drams; Oyl of *St. Johns-wort*, an ounce: Make it into an Ointment.

Oyl of Wax, Lime-water, and the brown Ointment of *Felix Wurtz*, are here excellent, if rightly used.

CHAP. IX.

Of Wounds by Gun-shot.

ALthough daily practice teaches us, that Bullets may be poisoned, yet they are not so of their own nature; for the pain in part, and the other Symptoms arise from the solution of the continuity and the contusion.

Here first the Bullet, and any thing else that accompanies it, is to be drawn forth, lest pain and inflammation coming upon it, may hinder; and care is to be had, that neither of them increase: and the contused Part, by the following Medicines be brought to suppuration.

Take Oyl of White Lillies, of Violets, of each two pints; two Puppies newly whelp'd; boil them till their Bones be almost dissolved, then add Oyl of Earth-worms, a pint; and boil them again; strain them, and add of *Venice-Turpentine*, three ounces;

ounces; Spirit of Wine, an ounce: Make it into a Liniment.

A Wound-Oyntment.

Take Venice-Turpentine, an ounce; *Galbanum*, two drams; Calfs-marrow, half an ounce; Powder of Scorzonera and *Scordium*-Roots, of each two scruples; Oyl of St. Johns-wort, half an ounce; the Yolk of an Egg, Threacle, a dram: Make it into an Ointment.

Another more effectual.

Take Roots of Birthwort powdred, a scruple and an half; Mummy, Amber, Mastick, of each a dram; Turpentine, half an ounce; *Euphorbium*, a dram; Ung. *Aegyptiacum*, half an ounce; yolk of one Egg, Oyl of Elders, as much as is sufficient; Saffron, a Scruple; Make it into an Ointment.

Another more excellent than the former, and which likewise resists Putrefaction.

Take Tar, Turpentine, *Galbanum*, of each two ounces; Mastick, Frankincense, Nitre, *Sal Armoniack*, of each an ounce; Allom, half a dram; Verdigreese, white Vitriol, Camphire, Powder of Worms, of each a dram; Oyl of Linseed, Roses, of each two ounces; Oyl of Worms, and Turpentine, of each a dram: Molax them with a gentle fire; and make them into an Ointment.

If the Nerve hinder not, in a great putrefaction, there may be added some Precipitated Mercury

An Anodine Plaister.

Take Bean-meal, Crums of Brown Bread, of each two drams ; let them be put in Milk, adding to them Oyl of Roses, Violets, of each an ounce; Yolks of Eggs, N^o iij. Powder of Red Roses, *Scordium*, of each an ounce and half ; Wax, as much as sufficeth : Make it into a Plaister.

An Anodine Cataplasme.

Take Roots of Marshmallows, Comfrey the greater, of each an ounce ; Flowers of Camomil, Melilot, St. Johns wort, of each half a handful ; Tops of Wormwood, two pugils ; boil them in Milk, adding to them of the Meal of Marshmallow-roots and Beans, of each an ounce and an half : Make it into a Poultice.

If the Wound be quite through, a Tent must be put into both Orifices ; for a Flamula is inconvenient and hurtful. At first, dressing it once a day, is sufficient ; for in Wounds made by Gun-shot, there seldom appears any Matter before the third or fourth day ; after this, the quantity or acrimony of the Matter will guide you best whether it is to be drest once, twice or thrice a day.

CHAP. X.

Of Poysoned Wounds.

Poysoned Wounds are made sometimes by Bullets, Arrows, Swords and other Instruments ; some-

sometimes by mad Beasts, as Dogs, Wolves, which hurt more by their venomous quality, than by wounding.

Signs are, vehement pain, a livid colour, suddenly becoming black, Symptoms more grievous than for the quality of the Wound; a heat over the whole Body, Trembling, *Delirium*, Fainting, &c.

Prognosticks.] A poysoned Wound, though little, may bring Death, especially if near to the Heart, or any other Noble Part; or the Chirurgeon not call'd soon enough.

Cure consists chiefly in this, that the *Venom* be drawn forth by Cupping-glasses, attractive Medicines, Scarifications, or, which is safest, by an actual Cautery; but then it must not be in a Nervous Part, the Escar to be forthwith removed, and the wound to be cured by degrees. Inwardly *Sudorifics* and *Cordials* profit. Bleeding and Purging hurt.

A Plaister that draws forth the Poyson out of the Wound, and corroborates the Part.

Take Boild Onions, three ounces; Treacle; half an ounce; Goats-dung, an ounce; Angelica-Roots in Powder, a dram and half; Oyl of Scorpions, an ounce and half; Honey and Wax, as much as is sufficient to make into a Plaister.

That corroborates the Part, extracts the Venom, produceth Matter, and incarns the Wound.

Take Gums, *Galbanum*, *Sagapenum*, *Opopanax*, *Assa Fætida*, Mirtle, Pepper, Brimstone, of each

each six drams ; Pigeons and Ducks-dung ; of each an ounce ; Mummy, half an ounce ; the great Comfrey-Roots powdered, three drams ; Oyl of St. Johns-wort, as much as sufficeth to make it into a Plaister.

CHAP. XI.

Of particular Wounds.

IN Wounds of the Head, where the *Pericranium* is hurt, a stich either by *Needle* or *Plaister*, is not convenient ; fat things hurt, but comforting and drying profit much.

Take Mastick, Myrrhe, Aloes, Sarcocols, of each half a dram ; Dragons-blood, two scruples ; Bole a scruple ; Venice-Turpentine, two ounces ; Honey of Roses, a little : Make it into a Plaister.

Wounds of the *Brain* are accompanied with pain of the *Meninges*, and a great Flux of Blood ; to which succeeds other Symptoms, and for the most part Death it self. Oyl of Roses applied warm, greatly easeth pain, and fresh Pigeons-blood effects the same.

In an Hemorrhage.

Take Myrrhe, Aloes, Mastick, Dragons-blood, Rhubarb, Red Coral prepared, Hares-hair cut small, of each a dram : Make it into very a fine Powder.

Wounds of the *Face* are not to be sticht ; but
always

always care is to be taken, that the Scars may not render it deformed.

In Wounds of the *Eyes*, you must abstain from all unctious things. The sound Eye is to be bound as well as the whole. The Head must be placed upright; if there be a *Flux of Blood*, the following things are convenient.

The Blood of Turtles, Pigeons, Hens, Mucilage, of the seeds of Fleawort, of Quinces, Tragacanth, Bloodstone, Ceruse, Tutty, Frankincense, Aloes; the white of an Egg, Water of Roses and Plantain, Decoction of Balauſtians, Red Roses, Galls, &c.

Take white Troches of *Rasis*, prepared Tutty, Aloes Powdered, of each half a scruple; Red wine, an ounce; Red-Rose-water and Plantain, of each two ounces; Mucilage, of the Seeds of Fleawort, Tragacanth, of each a dram: Make a *Collyrium*.

In pain, Womans Milk fresh, is good; or the above-described *Collyrium*, adding to it half a scruple of *Opium*, and applying over it this Cataplasim.

Take of rotten Apples, two ounces; Flowers of Linseed, half an ounce; Mucilage, Seeds of Fleawort, two drams; crude *Opium*, half a dram; Yolks of Eggs, as much as is sufficient to make it into a Cataplasim.

A part of the *Nose* quite cut off, never unites again, although the Wound be but just made; but if it adheres still to the Body, 'tis to be stitched to it with a *Needle*.

Wounds of the *Ears* and *Lips* find greater benefit from the Needle than from Ligature.

Wounds of the *Lungs* require *comforting* and
drying

drying Medicines ; sharp being here very hurtful ; though used in other Wounds.

Externally.

Take Roots of great Comfrey, Tormentil ; Cloves, of each half an ounce ; Flowers of Red Roses, half a handful ; Mastick, Mirrhe, Aloes, of each a dram ; boil them in Barley-water, and to half a pint of the strained Liquor, add Syrup of Mirtles, common and strained honey of Roses, of each two ounces : Make it into a Liniment.

Internally.

Take Leaves of Fluellin, Strawberries, Sanicle ; of each half a handful ; Lung-wort, a handful ; Roots of Angelica, two drams ; Liquoras, a dram ; Jujubes, N^o. xv. Raisons, half an ounce ; boil them in Barley-water, and add to a pint and half of the strained Liquor, Syrup of *Diacodion*, three ounces : Mix them, let them take four ounces of it three or four times a day.

Half a dram of *Sperma Ceti* taken every day, is excellent ; but it weakens the Brain.

Wounds of the *Heart* are alwayes mortal, and those that penetrate into the *left Ventricle*, kill suddenly ; they seldom living so wounded, above six, twelve, or twenty hours, although there are examples produced for it. If wounded into the *right Ventricle*, it permits the Patient to live longer ; but that which terminates in the *substance of the Heart*, grants yet longer time.

Wounds of the *Stomach* for the most part are left to be Cured by Nature, which here doth miracles ; yet in a *Flux of Blood*, Bleeding is requisite. In a Wound penetrating into the Cavity it self,

self, all the Tunicles being divided, the Wound of the Abdomen ought to be united by a Stitch, a little Orifice being left, through which a Tent is to be put, which must not enter the Wound of the Stomach, but only outwardly touch it; let it be armed with this, or the like.

Take Oyl of Mastick, of Fir-tree, of each an ounce; Manna of Frankincense, two drams; Powder of the Roots of Tormentil, of the greater Comfrey, of each a dram; Saffron, a scruple; Earth-worms, half a dram; white Wine, two ounces; boil them to the consumption of the wine, and make a Liniment.

Take Turpentine, half an ounce; Yolk of an Egg, Oyl of St. Johns wort, an ounce: Mix it, and make a Liniment.

Wounds of the *Small Guts*, sometimes, though seldom, may be cured (this I can prove by a notable example) Those of the *Great Guts* are more easie. Where the *Small Guts* are hurt, the Chyle, and sometimes the Meat & Drink comes forth through the Wound, there is great pain, with a Fever and Nauseousness. Where the *Great Guts*, the Excrements come out at the Wound, or at least the sent; the Body is bound; the Wound is forthwith to be sticht together, and the Gut to be restored into its natural place, well cleansed with warm water, and this following Powder sprinkled upon it.

Take Aloes, Mastick, Frankincense, Mummy, Dragons-blood, of each a dram: Make it into a Powder.

Wounds of the *Liver* and *Spleen* require bleeding, and if the Belly be bound, Glisters are dayly to be injected; to the Wound it self are to be applied

plied Astringent and Drying Medicines.

Wounds of the *Kidnies* are difficultly and slowly cured: If made into the Cavity it self, the Blood that comes forth is Serous, otherwise more pure. This Liniment is of great esteem to be used outwardly.

Take Rosin of the Pine, six ounces; Oyl of Bayes and Turpentine, of each an ounce; Gum Elemne, four ounces and an half: Mingle them.

Inwardly are to be given the Troches of Alkakingi, *Gordonius*, *de Carabe*, or Sealed Earth, Bole, Turpentine and Wound-Drinks.

Wounds of the *Bladder* are generally cured after the same manner; but it is very seldom that they leave not behind them a *Fistula*.

The following Pills are of great use in Wounds and Ulcers in the Kidneys and Bladder.

Take Mans Bones calcin'd, three drams; Chalk, Burnt Talk, of each a dram; Troches of Winter-Cherries, three drams; Venice-Turpentine a little boil'd, as much as is sufficient: Make them into Pills about the bigness of little Pease, rowling them in the Liquoras-powder; let the Patient take morning and evening six of these.

*The End of the Second Part of the
Second Book.*

BAR-

BARBETTY'S CHIRURGERY.

The Third Book of the Second Part
of CHIRURGERY.

Of Ulcers.

CHAP. I.

*Of the Nature, Differences, Causes, and
Signs of Ulcers.*



N Ulcer is a solution of continuity
with Diminution of Magnitude in
the soft Parts, from a Corroding
Matter.

Differences are taken, 1. From
the Form of the Ulcer; so 'tis
great, little; long, short; broad, narrow; right,
transverse; equal, unequal; deep, superficial.
2. From the Part affected; which sometimes is
the skin and flesh only, sometimes the Tendons;
Nerves and Vessels that carry the Blood. 3. From
the Causes; which shall be presently spoken of.
4. From the Symptoms; so 'tis painful, itching,
obstinate, verminous, carious.

N

Cause

Cause is a sharp and corrosive Humor, and that is twofold. 1. Internal, as Choler, Melancholy, Serum, Salt, Phlegm, and other Malignant Humors. 2. External, as Burning and Corrosive Medicines: the Sweat of man infected with the Itch, Leprosie or Pox.

Signs of Ulcers in general are manifest enough; the particulars you shall have in their places.

Prognostick] By how much deeper the Ulcer is, so much the longer 'tis in Curing. Ulcers in Parts that are subject to much Humidity, are difficultly cured. If an Ulcer cannot be cured in a long time, or when Cicatrized, breaks out again, the Cause is, the Bone being foul under it. Ulcers near to the Nerves, Veins or Tendons, are dangerous. In Cacochimick Bodies, their Cure is tedious. If the Matter which comes from them be good, it gives hope of an easie Cure. Good Matter is of a middle consistence between thin and thick, white, light, equal, and not at all stinking. That which is ill, is thin and fluid, pale, livid, and of ill smell. Old and inveterate Ulcers are not cured without danger, except the Body be well purged, and a good order of Diet observed, otherwise some Diseases will ensue.

CHAP. II.

Of the Cure of Ulcers.

Purging and Bleeding are here often necessary, but a good ordered Diet alwayes. Hot Meats and Drinks hurt, as also all Sweet and Salt things.

things. Outwardly, the Humor ought to be concocted and turned into Matter; the lost flesh ought to be repaired, and then to be skinn'd. Remedies necessary to perform these, are Digestives, Sarcoticks and Epuloticks, which are set down in the seventh Chapter of the second Book of the second Part. We will add some Compounds.

A Defensive.

Take *Guaiacum* Wood, long Birthwort Roots, of each an ounce; Centaury the less, Wormwood; Agrimony, of each a handful: Boil them in white Wine, and to two ounces and an half of the strained Liquor, add of the Meal of Orobus, half an ounce; Myrrhe powdered, two drams; of honey of Roses, two ounces; Spirit of Wine, an ounce; Venice-Turpentine, as much as is sufficient to make it into a Liniment.

A Sarcotick.

Take the Brown Ointment of *Felix Wurtz*; three drams; *Basilicon*, half an ounce; Gum *Eulemni*, two drams; Turpentine, six drams; Colophony, Mirrhe, Aloes, Mastick, of each half an ounce; Litharge of Gold, three drams; Oyl of Roses, as much as sufficeth to make it into an Ointment.

An Epulotick.

Take *Sacchar. Saturn.* Litharge, of each two drams; *Lapis Calaminaris*, one dram; Roots of Tormenil, Bistort, round Birthwort, Dragons Blood, burnt Egg shels, of each half an ounce: Make them into a Powder.

Let it be sprinkled upon the Ulcer, or mingled

with *Unguentum Diapompholigos*, or *Emplastrum Griseum*, and you will have an excellent Cicatrizing Plaister.

Oftentimes there is some distemperature present, impeding so the Cure, that you must not expect *this*, before the Chirurgeon hath corrected *that*.

Difference.] This distemperature is fourfold, caused from Heat, Cold, Moisture and Dri-
ness.

Signs.] In a *hot* distemperature the Matter is sharp, the edges of the Ulcer red, and great pain. In a *cold*, the edges are soft, white, and where things succeed not well, livid. In a *dry*, the edges are dry and hard, little or no Matter. In a *moist*, the flesh is soft and loose, often increasing, great quantity of Matter.

Prognostick.] The Cure of all Ulcers is very difficult, which have a dry distemperature joyned with them.

Cure, in a *hot distemperature*, Plantain, Endive, Nightshade, Bole, Burnt Lead, Cadmia, *Saccharum Saturni*, Whites of Eggs, *Oxycratum*, Turpentine, Oyl of Roses, Violets, Myrtles; Ointments of Ceruse, white Camphorated, Roses.

In a *cold*, Oyl of St. *Johns*-wort, Nard, Orrise, Camomile, Rue, Dill, Rosin of the Larch-Tree, Spirit of Wine, Plaister of Betony.

In a *dry*, Let the Part be fomented with warm water, and the Chirurgeon must abstain from drying Medicines, till this distemperature be wholly gone; seeing otherwise the Cure is difficult.

In a *moist*, Cyperus Roots, St. *Johns* wort, Wormwood, Sage, Horehound, Betony, burnt Vitriol, burnt-lead, Litharge, Ceruse; Red Lead, Frankincense, Mastick, *Emplastrum Griseum*,
de

de Minio; as all things that are very drying.

Sometimes to this distemperature of the Part, is joyned a Flux of Humors; where *Purging*, *Repellents* and *Intercipients* are necessary. Issues in this case are of great use, especially in old Ulcers. No fat or unctious Medicines must be here applied, but strongly drying, which though very excellent, ought often to be renewed.

Sometimes there is *proud flesh*, of the taking away of which, look in the preceding Book.

The edges of the Ulcer are sometimes *Callous*; where emollient and gently dissolving Medicines are convenient, viz.

Take Muffilage of Marshmallow-seeds and Fenugreek-seeds, of each two drams; Turpentine, an ounce; Oyl of sweet Almonds, white Lillies, of each three drams: Make it into an Ointment.

If this and the like are not sufficient, the green Water set down in the fourth Chapter of the Second Book, is very convenient; but if this sufficeth not, the edges ought to be scarified, or the Callosity is wholly to be taken away.

Worms sometimes breed in Ulcers; where you perceive them, draw them forth with a convenient Instrument; but if they stick fast to the flesh, apply the following Medicines.

Medicines against Worms.

Wormwood, Horehound, Centaury the less, Germander, Dictany, Gentian, Aloes, Mirrhe, Bulls-Gall.

Take Aloes, Meal of Lupines, of each two drams; Mirrhe, Verdigreese, of each a dram; Bulls-

Gall, half an ounce ; Honey, as much as sufficeth to make it into a Liniment.

CHAP. III.

Of an Ulcer with foul Bones.

IT falls out sometimes that the Bone which lies underneath the Ulcer to be foul : Bones are corrupted and contract a rottenness, either from the *long Flux of Humors*, or from the *Acrimony and Malignity of them*, or from an *Occult quality*, or from a *Contusion*, in some manner injuring the Bone it self, or from *sharp Medicines*.

Signs of Corruptions are many ; where the Bone lies open to the sight, at first it appears of the colour of fat, then yellow, afterwards black and unequal ; but where it cannot be seen, Chirurgeons may judge that there it is a corruption, 1. If a *Fistula* preceded, or the Ulcer hath been of long continuance. 2. If the Ulcer being skinn'd break out again. 3. If the flesh above it becomes loose, spongy, pale or livid. 4. If with the Probe you find no resistance, but an inequality. 5. If the Matter be much, thin and stinking.

Prognostick.] If the *Caries* be near the Nervous parts, or in the Joynts, or about the Tendons, Arteries or Veins, 'tis not easily cured ; but for the most part the Tendon and Nerve are corrupted with it : No Ulcer can be cured whilst the Bone remains foul.

Cure.] The corrupted Bone ought to be corrected, either with Medicines, or with Chirurgery,

or

or by both. Therefore the flesh must be divided as soon as may be, that the Carious Bone may be laid open (lest some considerable Nerve, Tendon or Artery be hurt) according to the length of the Part, and the ductus of the Fibres, not transverse ; then let those Medicines be applied that may separate the Corrupted Bone from the Sound ; and that may preserve the Sound from Corruption.

Medicines against Corruption of the Bone.

Roots of round Birthwort, Briony, Orrise, Dragons, Hore-strong, *Guaiacum*, Bark of the Pine, Aloes, *Euphorbium*, Mirrhe, Alom, *Chalcantum*, Lime, *Chrysocola*, burnt Pumice, the Scales of Brass, *Aqua fortis*, Spirit of Brimstone, of Vitriol ; Salt, Tartar ; Oyl of Vitriol, Brimstone, Antimony.

Take Mummy, Sarcocols, of each half a dram ; *Euphorbium*, a dram : Mix them, and make a Powder.

Take Roots of round Birthwort, Orrise, Hore-strong, of each half an ounce ; Mirrhe, Aloes, of each a dram and half ; Bark of the Pine, Scales of Brass, of each a dram ; Earth-worms, two drams ; Honey as much as sufficeth to make it into an Ointment.

Take Juice of Celandine the greater, two ounces ; Spirit of Wine, an ounce ; Mirrhe, Aloes, of each two drams ; White Vitriol, a scruple : Mingle them for an Injection.

If the corruption of the Bone be so great, that it cannot be removed by Medicaments, then we must come to Chirurgery, and either *scrape* the

foul Bone, if the corruption be small ; or *Perforate* it, if great ; or rather use an *actual Caustery* ; for without these, you will scarce be able perfectly to cure it.

CHAP. VI.

De Ulcere Depascente, &c.

AN Ulcer further and deeper spreading, is called *Depascens* ; and if it be with putrefaction, is call'd *Noun* ; if without it, *Phagadana* ; if only in the skin, *Herpes* ; if ill-natured, *Cacethe*.

Cause is, the salt Serum of the Blood, salt Phlegm, burnt Choler, or some other Malignant Humor.

These Ulcers can scarce be cured, unless the Cause be first removed, and the whole Blood purified ; therefore here must be observed a good Diet, often *Purging*, and sometimes *Bleeding*.

External Medicines for Depascent Ulcers.

Plantain, Nightshade ; Flowers of Red Roses, Balauftians, Cypress-Nuts, Pomegranate-rinds, Frankincense, Mastick, Tutty, Ceruse, Litharge, Red-Lead, Burnt-Lead, Brimstone, Pepper, Ginger, Mercury, *Ung. Egyptiacum*, *Fuscum*, *Dia-pompholigos* ; *Emplast. de plumbo*, *de minio*, *Gryseum*, *de ravis cum Mercurio*.

Take flowers of Red Roses, Balauftians, of each a handful ; Leaves of Plantain, half a handful ; Cypress-Nuts, Myrtle-berries, Pomegranate-rinds, of each half an ounce : Boil them in Red Wine.

Wash the Ulcer with it, then use over it this following.

Take

Take prepared Tutty, half an ounce; Burnt-Lead, washed Ceruse, of each an ounce; Bole-Armenick, half an ounce; *Ung. Egyptiacum*, as much as is sufficient to make it into an Ointment.

Or,

Take Long-Pepper, half a dram; Ginger, a scruple; Flower of Brimstone, Litharge of Gold, each two drams; Gunpowder, a dram; *Ung. Fusci* of *Felix Wurtz*, three drams; *Ung. Album, Camphoratum*, as much as sufficeth: Make it into an Ointment.

Take Mastick, Frankincense, Mirrhe, of each three drams, Litharge of Gold, Burnt-Lead, of each half an ounce; Quicksilver exting in Turpentine, two drams; Brimstone, half an ounce; Pitch and Wax, as much as is sufficient to make it into a Plaister.

Concerning the Cure of these Ulcers, 'tis to be noted, 1. External Medicaments ought to be changed three or four dayes; for Nature rejects the best, longer applied. 2. They ought not to be drest above once or twice a day, except the Matter be very sharp, that the Medicine may not be disturbed in its operation. 3. Repellent and Mercurial Medicines are not to be used, except with continual-Purging you drain the Body of its Impurities. 4. These Ulcers are seldom cured without the use of purging or drying Decoctions, made of *China, Guaiacum, Sarsa, &c.*

CHAP. V.

Of Fistulae.

A *Fistula is a long, narrow hollownes, or a sinuous Ulcer, narrow and callous, not easily receiving Cure; for the most part, taking its beginning from an Abscess.*

Difference, are straight, oblique, simple, manifold, that is, having many hollownes; some going to the Bone, some to the Veins, Tendons, or Nerves.

Signs.] The edges of this Ulcer are white, hard, without pain, or but little; sometimes moist, but commonly dry: Outwardly the Cavity may be perceived in one place or other by pressing the Part; in which also sometimes there is a noise perceived, and the Matter now in lesser quantity, otherwhiles in greater, is prest out through the Orifice of the Fistula: By a Probe we can search the Cavity of a straight Fistula; but in an oblique, we use a Wax-Candle instead of a Probe. That is more convenient when the Fistula penetrates to the Bone; this, when it is in the fleshy and sensible parts: *If the Fistula remain only in the fleshy parts, that which is touched by the Probe, is soft, and the Matter that comes out, is white, equal, and in great quantity. If it extend to the Nerve, there is great pain in searching it to the bottom of the hollownes, and the Matter is fat and oily, but is less in quantity, and the action of that Member to which the Nerve goes to, is rendred very uneasy:*

uneasie: If it passeth to the Bone, that which is touched by the Probe, is hard, not yielding, and painful, where the *Periostium* is not consumed; The Bone, if foul, is rough, and seems unequal to the touch, the Matter is black, stinking and very thin: If the Cavity joyne to a Vein, the Matter is like dregs, but redder and thicker, where the Vein is eroded: If it penetrates the Arteries, that which comes forth, is thin and shining, and comes forth with a leaping.

Prognostick.] All *Fistulae* are of hard cure; some incurable, others that ought not to be cured; to wit, those by which the superfluous Humors have for long time been vented.

A recent *Fistula*, and not deep, in a young body, and otherwise sound, is easily cured; but an old deep *Fistula*, having many Sinu's in an ancient, emaciated, cachochimich Body, is very difficult.

Those are also difficultly cured, yea, for the most part incurable, which touch the Tendons, Nerves, Veins, Arteries, Bones, and those that are in the Joints, Vertebra's, Cavity of the Breast, and lower Belly, the Womb, Bladder, or Guts.

Fistulae are wont to come in those places where Nature is accustomed to discharge her self of vitiated Humors, to wit, in the Abdomen, Groins, Buttocks, Fundament, Cod and *Perinaeum*.

Where the Edges are not very hard, but somewhat soft and mattery, they do promise speedier Cure.

Cure of *Fistulae* are twofold, one Real, and the other Palliative; by this the *Fistula* is dried within, and skinned without; the hollownes nevertheless remaining, commonly continuing some little

little while closed, but easily breaks forth again, except by a good Diet, often Purging and Bleeding it be perfectly cured : The true Cure is performed in this manner ; good *Diet*, *Purging*, *Bleeding* and *Wound-Drinks* effect here very much ; but the *Hemorrhoids* flowing more. *Natural Baths* do oftentimes cure the greatest *Fistula's* ; in defect of them, may be prepared *Artificial*, of Brimstone, Alom, Salt and Tartar, boil'd in Water ; afterwards let the *Fistula* be dress'd according to Art. Externally, the Part is to be corroborated, the *Humor contained in the Sinus* to be dried ; but especially the *Callosity of the edges* is to be taken away ; therefore are Medicines for this purpose to be used ; by whose help many *Fistulae* have been cured : but these not being sufficient, an *actual Caustery* is to be applied, having first divided the edges ; for which purpose the *Syringotomon* of *Fabritius Aquapendens* is a most useful Instrument.

Medicines for a Fistula.

Roots of Hellebore, Cuckopintle, Gentian, Birthwort, *Euphorbium*, Juice of Celandine, Smal-lage, Dragons, Spurge, Flax, strong Vinegar, Lye, Lime, Alom, Vitriol, Verdigreece, Orpine, Mercury precipitate and sublimate ; the Phlegm and Spirit of Vitriol, *Ung. Aegyptiacum*, *Fuscum*.

A Corroborating and Drying Plaister.

Take Mastick, Frankincense, Pomgranate-rinds, of each two drams ; Dust of a rotten oaken post finely searced, three drams ; Red-Roses, Myrtle-berries, of each a dram ; Yellow Wax, Rosin of
the

the Pine, Oyl of St. Johns-wort, of each an ounce :
Make it into a Plaister.

An Oyntment.

Take the Juice of Smallage, two ounces ; of
Celandine, two drams ; of Onions, one dram ; Ho-
ney of Roses, three ounces ; Turpentine, as much
as is sufficient to make it into an Ointment.

Another.

Take Juice of Flower-de-luce, an ounce ; of Ce-
landine, half an ounce ; Red-wine, six drams ; Ho-
ney, four ounces : Let them boil a little, then add
of Aloes, Mirrhe, of each half a dram ; White-
Vitriol, a scruple ; Litharge, two drams ; Tur-
pentine, a little : Make it into an Oyntment.

Another more Excellent.

Take Powder of Briony-roots, a dram ; Frank-
incense, Mirrhe, of each two drams ; Verdigreece,
half a dram ; *Sal Armoniac*, a scruple ; Hogs-
grease, Oyl of Olives, of each as much as suffi-
ceth to make into an Oyntment.

Another of greater Vertue

Take White Vitriol, four ounces ; Alom, Ver-
digreece, of each half an ounce ; Strong Vinegar,
six ounces : Calcine them in a luted Vessel, and
powder it.

Mix it with *Ung. Egyptiacum*, and arm the
Tent with it.

The brown Oyntment of *Felix Wurtz*, is a
most

most excellent Medicine in this case, if it be reduced by boiling into the form of a Suppository, and so put into the Fistula: You will do well to prepare it your self; for 'tis not rightly made by every one: The following Suppositories are excellent, especially in Fistulae of the Fundament, and other soft Parts.

Take Agrimony, half a handful; *Scordium*, a pugil; Flowers of St. *Johns-wort*, two pugils; French-Barley, an ounce; boil them in White-Wine, and strain them, adding of Virgins-Honey, four ounces: Boil them to a thickness, then add of Male-Frankincense, choice Mastick, of each two drams; Red Mirrhe, a dram and half; *Sarcotols*, three drams; White Vitriol, a dram: Make them into Suppositories.

CHAP. VI.

Of Burns.

Burning is a solution of Continuity, caused by an External burning-matter always hurting the Scarf-skin, for the most part the Skin, and sometimes also the Muscles, Veins, Nerves and Tendons.

Difference.] It admits of three sorts. 1. Sometimes there is a heat and pain, at least in the Part affected, caused from burning; and except Remedies are presently applied, the Scarf-skin is separated and divided from the Skin, and Blisters are raised, which contains in them clear Water. 2. Sometimes the Skin it self is burnt, then presently

sently a Blister is raised, but no Escar made.
3. Sometimes also the subjacent *flesh* is burnt, here the Skin is black and void of sense, and after the Escar falls off, leaves a deep Ulcer.

The differences spring from the Causes; for Lead, Tin, Iron, Powder, Lightning, do vehemently burn; Oyl, Vernice, Pitch and Wax less; Straw, Water, Flax, and the like, least of all.

Signs, by what hath been spoken, are manifest enough.

Prognostick.] A deep and great Burn, very seldom but leaves ugly Scars behind it; Burning from Lightning, is for the most part mortal: That which penetrates to the great Vessels, generally occasions a Gangrene; if to the Intestines, incurable; Burns of the Eyes and Groins, very dangerous. If a hairy part be burnt, it remains bald; never hair grows there again.

Cure.] The chief care must be to draw out the fire, by which in a light burning you preserve from Blisters and Ulcers; in a great one, you free from all danger; therefore what Medicine soever is at hand, is presently to be used; let the hurt Part be held to the Fire, and fomented with warm Water, Ink, Lye, or let there be applied Soot, or an Onion beaten with Salt, or any the following

Medicines in Burning.

Roots of White Lillies, Liquoras; Leaves of Bete, Coleworts, Hemp, Onions, Garlick, Henbane, Tobacco, Leeks, St Johns-wort; Flowers of Camomile, Melilot, Elders; Seeds of Quinces, of Line; Camphire, Mirrhe, Olibanum, Soot, Whites

Whites of Eggs, Hogs-fat, Pigeons-dung, Sheeps-dung, Hens-dung, Nitre, Ceruse, Ink, Brine, Lie, Oyl of Nuts, Rape, white Ointment with Camphire, Plaister of Red Lead.

An Ointment.

Take Juice of Onions, two ounces; Venice-Sope, three ounces; Common Salt, two drams; Hogs-grease, two ounces; Washt Lime, three drams; Oyl of Rape, Muffilage of Quince-seeds, of each an ounce; Turpentine, as much as is sufficient to make it into a Liniment.

Another, by whose means a poor Souldier became rich.

Take Leaves of new gathered Sage, a handful; of Plantain, two handfuls; Fresh Butter without Salt, six ounces; New Hens-dung, and the whitest as you can, three ounces; fry them together for the space of a quarter of an hour, press them hard out, and reserve the prest-out Liquor for your use.

This Oyntment is excellent in Burning of all sorts, even in the greatest; it being melted, let the hurt Part be often annointed with it in a day; then laying over it a fresh Leaf of Colewort, Bete, or Plantain.

If any Pustules are raised, and yet the Burn not great, open them the third day, and let not the opening be prolonged further, lest there follow a Corrosion.

If the Skin be wrinkled and dried, all the Pustules are presently to be cut, then let the precedent Ointment, or this following be applied.

Take

Take Oyl of Violets, white Lillies, sweet Almonds, Butter without Salt, of each an ounce; Muffilage of Fleawort-seed, Meal of Marshmallows, of each an ounce and half; Saffron, half a dram; Soot, *Ung. Basilicon*, of each an ounce. Make it into an Ointment.

If there be an Escar, let its separation be endeavoured the first or second day; for which the last above-prescribed Ointment is exceeding good; but if it separates not, then Incision is to be made unto the sound flesh: when 'tis separated, 'tis to be cured as a common Ulcer.

If there be danger of a *Gangrene*, or already present, it requires its Cure, which is already treated of in its place.

Where the Eye-brows, Lips, Fingers or Toes are burnt, a clean Linnen Cloth, or Plate of Lead is to be put between them.

If a tender part be burnt, you must abstain from the use of Onions, Sope, Salt, and such like sharp Medicines.

That ugly *Cicatrices* may not be left, you must forbear the use of strong drying Medicines.

CHAP. VII.

Of particular Ulcers.

IN an Ulcer of the Head, neither *Uctions* or *Repellent Medicines* are convenient. If the ill quality of the Humor requires the use of Mercury, great care is to be had, that it be well prepared; for *Crude* is very dangerous; which ought not to be

be applied where the Ulcers are about the Sutures, seeing a Salivation may be easily raised, which will difficultly afterwards be suppressed.

Ulcers of the Eyes, for the most part, leave blindness, especially where the Horny Tunicle is wholly corroded, by which the Watry Humor is let out, as also oftentimes the CrySTALLINE: an Inflammation generally is very painful, which is forthwith to be removed by those Remedies delivered in the seventeenth Chapter of the first Book. To the Ulcer it self, first, Absterfive, then Cicatrizing Medicines are to be applied.

An Absterfive Collyrium.

Take white Amber, Red Mirrhe, of each half a scruple; Eastern-Saffron, six grains; White of one Egg, Sugar-Candy, a dram; Eyebright-water, two ounces and an half: Mix them.

Another,

Take Aloes, Frankincense, prepared Tutty, of each half a scruple; Glass of Antimony, six grains; Gum, Tragacanth, a scruple; Celandine-water, three ounces: Mix them.

Or,

Take Red Coral prepared, Frankincense, of each half a dram; white Troches of *Rhasis*, prepared Harts-horn, of each a scruple; Burnt-Lead, fifteen grains; crude Antimony, a scruple; Honey of Roses, as much as is sufficient to make it into an Ointment.

A Cicatrizing Collyrium.

Take Burnt-Lead, White Troches of *Rhasis*,
Sarco-

Sarcocols, *Sac. Saturni*, of each half a scruple;
Rose-water, four ounces: Mix them.

Ulcers of the Nose most commonly yield an ill
sent, whence they are called *Ozæna*. *Cause* is a
sharp, bilious, salt or malignant humor, which
sometimes corrupts the Bones themselves, but
chiefly the Cartilage, so by a flat Nose deforms
the Face. They are hard of Cure, and therefore
respect must be had to the whole Body, at least
the Head, which requires corroborating, and mo-
derate drying.

External Applications are to be *absterfive*, and
because of the humidity of the Part, somewhat
drying. The juyce of *Scharley* mixt with Honey
of *Roses*, is excellent here;

Take one Pomegranate sliced, Litharge of Gold,
two drams; red Lead, a dram; Burnt-Alom, a
scruple; *Mercurius dulcis*, half a dram; Whitest
Sugar, an ounce; White Wine, six ounces: Let
them boil a little, and preserve the strained Liquor
for use.

Take Burnt Lead, washd Geruse; prepared
Tutty, Litharge, of each two drams; Frankin-
cense-Bark, one dram; Mirrhe, round Firth-wort,
Mercurius dulcis, of each half a dram; *Ung. Fus-*
cum of *Felix Wurtz*, three drams; *Ung. Album*,
Camphorat. as much as sufficeth to make a Liniment.

Fumes of the following Powder put upon Coles,
is very good, provided it be used cautiously, and
not above once, or at most twice a day, lest a sa-
livation should be raised; which also will cure the
Ulcer: The quantity of a Nutmeg is sufficient for
the Dose.

Take Bensoes, Sandarach, Mastick, Frankin-
cense, Storax, of each a dram; Artificial Cinnabar,

bar, half an ounce: Make it into a Powder for Fuming.

Ulcers of the Mouth require often *Purgings*, sometimes *Bleeding*; and if there be Malignity, *Antivenereal*, *Sudorifick Decoctions*, which are here of great use.

External Remedies also here, are *Abstersives* and *Driers*: I have tried the following to be of singular virtue.

Take Oak-leaves, a handful; Flowers of Roses, Balauftians, of each a pugil; Pomegranate-rinds, two drams; Burnt-Alom, two scruples; White Vitriol. half a scruple; Boil them in Red-wine; to half a pint of the strained Liquor, add Honey of Roses, *Rob. Diamoron*, of each an ounce: Make a Gargarism.

Or,

Take common Chalk, burnt-Talk, Red-Lead, Burnt-Alom, of each a dram; Bole-Armenick, two drams; *Mercurius dulcis*, half a dram; Vitriol, a scruple: boil them in white Wine, and to ten ounces of the Liquor, add Syrup of Comfrey of *Fernelius*, two ounces and an half: Mix it for a Mouth-water.

Or,

Take burnt-Talk, Flower of Brimstone, Bole-Armenick, Frankincense, Comfrey-Roots the greater, Pomegranate-Rinds, of each a dram; Burnt-Alom, two scruples; Verdigreese, half a dram; Honey of Roses, as much as sufficeth to make it into a Liniment.

Or,

Take *Ung. Fuscum* of *Felix Wurtz*, three drams; Honey of Roses, two drams: Make a Liniment.

The Fume for Ulcers of the *Nose*, is here useful;

ful; as also common Ink. If Medicines effect nothing, an actual Cantery must be used.

An Ulcer of the Bladder is troublesome, and for the most part incurable, having its beginning from a Wound, the Stone, a sharp Humor, or Diuretick Medicine, it requires many Internal and External Remedies; which that we may not exceed our bounds, we leave to be prescribed by the Physitian, except some few, whose vertue hath been often experimented by us.

Take Roots of round Birthwort, Comfrey the greater, Osmond-royal, of each half a dram: Mirrhe, Frankincense, Storax, Mastick, Gum Tragaganth, Seeds of white Poppy, Henbane, of each a scruple; Juice of Liquorice, half a dram; Venice-Turpentine, as much as to make them into Pills of the bigness of a little Pea.

Or,

Take Troches of *Alkakingi, de Carabe*, Burnt-Talk, of each half a dram; Bole-Armenick, Sealed Earth, Mans-Skull, of each a dram; Venice-Turpentine, as much as to make them into Pills of the bigness of a little Pea.

Let the Patient take six of these Pills, or of the former every day Morning and Evening.

Take Lime-water, three ounces; Plantain, two ounces; white Troches of *Rhasis*, a dram; Mix them for an Injection, to be used twice or thrice every day.

Lime-water in this place is nothing else than common water wherein quick Lime hath been quencht: have a care of making it too strong.

Ulcers of the neck of the Bladder are cured after the same manner, though indeed more easily; and those of the *Penis* far more easily; although

contracted from a virulent *Gonorrhæa*. These are to be known by the pained Part, and by the coming forth of the Matter, before or after making of the Urine; except timely you endeavour their Cure, the Disease slides inwardly, and will perforate either the Bladder or *Perineum*: Sometimes there are here one or more *Caruncles*, which, because they cannot alwayes be cured by Medicaments, they may be taken away by Chirurgery, by the assistance of an Instrument described by *Pary* and others; yet many times have I cured these Excrescencies, by using of small Suppositories made of the following Ointment, thickned by gentle boiling.

Take *Ung. Fuscum* of *Felix Wurtz*, Honey of Roses, of each two drams: Make it into an Ointment.

In these *Caruncles*, before they are fixt, we effect much by Vulnerary, Sudorifick and Antivenereal Decoctions, outwardly using the following Medicine.

Take Litharge of Gold, Flower of Brimstone, of each three drams; prepared Tutty, two drams; Red Lead, half a dram; *Ung. Egyptiacum*, a dram, Honey of Roses, as much as is sufficient to make it into an Ointment.

Anoint a Wax-Candle with this Ointment, and put it into the Urinary passage, renewing it twice or thrice a day, until there is an absolute Mundification. Its Consolidation is performed with no better Medicines (that I know of) than by the *Amalgama* of *Mercury*, described in the seventh Chapter of the second Book, if it be mixt with *Ung. Diapompholigos*, and the Wax-Candle anointed with it, and put into the *Urethra*, as is already said.

Ulcers

Ulcers of the *Nick* of the *Womb*, though slight, they are of difficult Cure, and if those Ulcers are negligently handled, they produce grievous Symptoms, and sometimes a Gangrene; after *Purging*, and the use of *Vulnerary* and *Venereal Decoctions*, as also *Bleeding*, the following is good.

Take Roots of *Orrise* powdered, *Litharge* of Gold, Flower of *Brimstone*, of each two drams; *Mastick*, a dram; *Mercurius dulcis*, half an ounce; *Ung. Fuscum* of *Felix Wurtz*, two drams; *Honey* of *Roses*, as much as sufficeth to make it into a Liniment.

A Fume.

Take Gum of *Juniper*, an ounce; *Mastick*, *Myrrhe*, *Landanum*, of each two drams: Make it into a Powder.

If they had their Original from the *French Pox*, add to this Powder a dram of *Cinnabar*, and use it twice a day.

Ulcers of the *Legs*, especially those that are upon the *Shins*, occasion great trouble to the *Chirurgion*, because the *Humors* of the whole Body continually flow to those parts; for which reason the Medicines are oftentimes used to little purpose, the Part must be well rowled from the Foot upwards, and the Body once or twice a week well purged.

A Plate of *Lead*, or *Plaster* of *Lead*, or *Dia-pompboligos*, of *Minium*, *Griseum*, or the following is very good in this case.

Take the *Plaisters* of *Lead*, *Griseum*, of each an ounce; *Litharge* of Gold, *Ceruse*, of each three drams; *Sac. Saturni*, half a dram; Gum

Elemny, two drams: Make it into a Plaister.

Another very good in these, or other Malignant Ulcers.

Take *Album Gracum*, Froth of the Sea, of each an ounce; Oyl of bitter Almonds, four ounces; Sheeps-Sewet, six ounces; White Wax, as much as sufficeth to make it into a Plaister; to which, if you please, you may add some *Diapompholigos*.

Fac totum Magistri Christiani.

Take Oyl of Roses, twelve ounces; Ceruse; Mussilage of the Roots of Comfrey, of each six ounces; White Wax, four ounces; Lirharge of Gold, Red-Lead, *Lapis Calaminaris*, of each three ounces: Make it into an Ointment according to Art.

Another.

Take Flowers of Red-Roses, one ounce; Ba-laustians, two drams; Elder-flowers, an ounce and half; Roots of Tormentil, Round-Birthwort Roots, Long Pepper, *Lapis Calaminaris*, of each an ounce: Prepared Tutty, two drams; Bolc-Armenick, half an ounce: Litharge of Gold and Silver, of each an ounce and half; Rose-water, five ounces; White Wine, twelve ounces: Mix them.

The End of the third Book of the second Part.



THE AUTHORS
P R E F A C E
TO THE
STUDIOUS READER.



S Chirurgery is a part of Physick, that ought not to be separated from it ; so also let not any imagine to himself, that he can deserve the name of an Experienc'd Chirurgeon, except he understand some part of it, especially Anatomy, the only Foundation of Chirurgery. But seeing that the study of some most curious Anatomists, hath found out many excellent things in this happy Age, altogether unknown to the Ancients (though some foolishly affirm the contrary, with great pains, ascribing those things to them, which they never so much as dream'd of) which indeed are
not

To the Studious Reader.

not to be accounted of, as ingenious subtilties, but as the Fundamental Rules and Cynosure to those that Navigate through the vast Ocean of this Art. It is every ones part to labour in it, that it may be perfected, and every day more and more illustrated; which may at length be brought to pass, if with the greater Pains, Industry and Curiosity we enquire into the unknown Regions and Tracts of the Microcosm, and not given to sloth, plow our Ground with other mens Oxen, only trusting on the Authority of the Ancients, which the Learned wisely call *Asinorum pontem*. As for me, I have ventured to introduce some new Opinions, because that I deemed them in the nature of things, to exceed thee and me, and all in Antiquity. If thou enquirest into it with the same labour, perchance thou mayest embrace the same Opinions: That of the Circulation of the Blood is now spread over all Europe; yea, the principal Professors in the Illustrious Universities, do all with one voice approve it; the Salivous passages and Lymphaducts, as also the Lacteal Vessels, both the greater and lesser, may so plainly be demonstrated, that they may be perceived as it were with one Eye. My own proper and peculiar Opinions I have confirmed with Reasons, which I suppose are agreeable to

To the Studious Reader.

our Art: In the rest, if thou findest any thing new, it is nothing but what can be demonstrated by Dissection. What others have writ at another time, pleaseth us also; for I cannot, nor ought not to change the parts of the Body; nevertheless the Disposition of my Genius is so pregnant, that I hope it will free thee from great pains and trouble.

For, first I thought it convenient largely to discourse of the simple Parts, their Affections and Use, that thou mightest not be necessitated to repeat in following the same thing a hundred times.

To this end I have retained the Terms of our Art, used by the Ancient Latine Writers.


Then I expound the elaborating the Blood, which properly is the Foundation of all Physick, and which the Wits of the Learned have long and much wrested: O *foelicissimum* qui metam proximè attingerit!

Lastly, All the parts of the Head, Breast, Abdomen and Joynts, I have so described, having not at all separated them, that thou mightest not be forced to seek one here, and another there.

To the Studious Reader.

But that this knowledge might become the more profitable, I have shewn the Uses of it in Chirurgery, which I hope you will well apply, and endeavour with me, as much as possible, to perfect this Imperfection.

BAR-



BARBETTY'S CHIRURGERY.

The Third Part of Chirurgery ;
OR,
The *PRACTICAL ANATOMY*:

In FIVE BOOKS.

1. *Treats of the Parts ingeneral.*
 2. *Of the Head.*
 3. *Of the Breast.*
 4. *Of the lower Belly.*
 5. *Of the Joynts.*
-

CHAP. I. *Of the Practicall Anatomy.*

THE PREFACE.



*How which desirest to know thy self,
come hither and view; the little
World will declare how thou oughtest
to value the great one. The Ar-
chitecture of thy Creator, by no Art
to be bettered, the Essence of thy
Soul, not to be reacht by the greatest strength of
thoughts,*

time, and in a convenient quantity; otherwise they easily fall into a Dropsie. Strong Purges, to wit, *Euphorbium*, *Scammony*, *Coloquintida*, and those that are compounded of them, they cannot bear; though gentle Medicines, easily; as Cream of Tartar, Manna, Tamarinds, Pruines, Syrup of Roses with Senna, Syrup of Succory with Rhubarb, Pulp of Cassia, Electuaries of *Diacatholicum Lenitive*, &c. As they easily fall into a Disease, so they quickly again recover.

The *Cholerick* have black Hair, and for the most part curled; lean, but ver strong: Coition profitable; they are judicious, and swift in action, avoiding idleness; they trust neither the words or gestures of men; soon subject to Laughter, if the thing require it, otherwise grave: When irritated, addicted to strike; more inclined to Drink and Watching, than to Eating and Sleep; their dreams are of Fire, Thunder, Quarrels, Battels. Pulse strong, quick and great: Urine high-coloured, as also their Excrements.

Choler requires not Bleeding, yet permits it, if there be a quantity of Blood joyned with it; but it must neither be excessive, nor oftner repeated, than just necessity requires, lest the *Choler* shews its Malignity; gentle Purges relieve it, but strong irritates it; it produceth vehement and dangerous Diseases, and for the most part short.

Phlegmatick have long Flaxen Hair, which easily falls off, and as easily grows again; Pale-faced, cold and weak Body; long ere they desire Marriage, and soon debilitated by it; sloathful, unsit for Conversation; not solicitous about publick Affairs; difficultly brought to Laughter or Anger, which then lasts not long: They eat and drink little.

thoughts, and the fragility of thy *Terrestrial Mansion* will teach thee to esteem those things more that are above thee, to use better those things that are within thee, and to carry thy self with a more compassionate mind towards thy Neighbour; although thou walkest here as a stranger, the consideration of these things will shew thee, that thou oughtest not to be a stranger in the most necessary knowledge of thy Duty, by which thou maist use it to the greater good of thy self, so of others, if thou diligently enquire; of what parts the *Fabrick* of thy Body consists; to this end, first we will shew the simple parts and their use; then after the division of the whole Body, the compounded Parts;

The Chirurgical use.

Seeing 'tis very necessary even at first sight that thou shouldest know the nature and temperaments of men, because they give the Rules of what is to be done in the curing of each Disease, we have thought it convenient in the very beginning of this Treatise, to describe their Signs.

The *Sanguine* abound with Hair, but lank and yellowish; in process of time declining into blackish, handsome, red-cheek'd, fleshy, strong: When young, addicted to *Venerie*, not enduring labours, easily sweating, pthysical, affable in their Conversation and Discourse; not suspicious, equally prone to laughter and tears; they sleep soundly, their dreams are pleasant; Pulse is great and strong; Urine yellowish, and in great quantity, soluble; They hate Women, and, except in their company, seldom think of them.

They bear *Bleeding*, provided it be at a fitting time,

little, prone to sleep; *Dreams* are of Fish, of the Water and Rain; *Pulse* small and slow; *Urine* pale, and sometimes thin, but generally thick and darkish, the Belly *soluble*: they bear not *Bleeding*, except upon necessity; they endure strong *Purging*; their *Diseases* are long, but not dangerous.

The *Melancholick* are almost destitute of *Hair*, which is lank and black, of a *grim* countenance, the whole skin livid, *lean*, *slow*, and addicted to *Venery*, *prudent*, *morose* in conversation, readier to give counsel to others, than to themselves; not subject to *Laughter* or *Anger*, but long before appeased; they eat and sleep much; *Urine* copious, *Excrements* little, grievous *Dreams*, *Pulse* small, slow and hard.

Bleeding is hurtful, *Purging* profitable; the *Diseases* which it begets, are stubborn and tedious, and oftentimes more dangerous in the end than in the beginning.

Let these general Signs suffice in this place. But 'tis to be observed, that the *Temperaments* are mixt, and then the Signs are also. Yea, many *Mutations*, *Vices* and *Dissemblations*, as also *Virtues* and *Ingenuity* may be attributed to them, which is your part judiciously to distinguish; but we assent not to *Galen*, who held that the dispositions of the Mind relie upon the *Temperaments*.

CHAP. II.

Of the Parts in general.

A Part (properly so call'd) is a firm, limited Body, which is nourished by other living Parts but doth not nourish; having a peculiar use and operation for the advantage of the whole.

It is distinguished, 1. Into the *Principal Parts*, or those not so: *Principal* are those that perform some Noble Operation common to the whole Body as the Heart, Liver, Brain, Testicles: *Those not so*, are those that serve the Principal, and whence they are call'd their Servants, as the Eye, Ear, Hands, &c.

This distinction pleased some Anatomists many years since, whom I much esteem; yet not me: For if the Liver and Heart are numbred amongst the Principal Parts, because they elaborate the Blood for the advantage of the whole Body, why is not the Tongue accounted a Principal Part also? which is not only an Instrument of Speech, by which we are distinguished from Beasts, but also of Tastes, by whose assistance we chuse those Aliments which are best; which if wanting, how the Heart and Liver could supply the Body with good Nutriment, I see not. The Brain governs all, but how I beseech you? If the Intestines did not perform their Office aright, what would it effect? How should we be esteemed, if, like an Oyster, we should want Eyes and Ears? How despised are the Feet and Hands, yet in how many conditions

ditions do they serve? For those not stirring, both Chilification would be impaired, and the Blood and the Spirits rendered thicker, and the Brain made unfit for all actions: In how short a time would the *Lympha* of our Body be corrupted, if, besides its own motion, it was not also moved with the whole Body? All things in our Body are joyned together as in a Clock, one cannot be without the other; neither is the most despicable Wheel less necessary than the Hand of the Clock it self, without which, it cannot be accounted a Clock.

2. Into *similar* Parts and *dissimilar*: A *similar*, which divided into many parts, yet, whole single parts be of the same Nature with the whole.

Dissimilar are made up of more or less *similar*s, as the Hand, Fingers, Feet.

There are *ten Similar*s found in the Body; a Bone, Cartilage, Ligament, Membrane, Fibre, Nerve, Vein, Artery, Flesh, Skin; the eight former are made of Seed; Flesh of Blood alone, the Skin of both.

This Division is subject to greater difficulties than the former; but seeing it is not convenient to reject it, without the greatest confusion in the practice of Physick, let us consider the thing it self, committing the Disputes concerning the Name, to the Schools.

Chirurgical Consideration.

1. A *Principal Part* being affected or wounded, renders the whole Cure dangerous; therefore *Prognosticks* are not to be given here, but with limitation, lest the sudden alteration be rather ascribed to thee, than to the Disease.

2. Wounds of the *similar* Parts are less dangerous

rous than of the *dissimular*; yea, oftentimes they are sooner cured by simple Medicines, than by compound; the consent of the Parts, by reason of the Vital and Animal Spirits is so great, that scarce a Joint of the Finger being hurt, can be cured, without regard had to the whole Body. Indeed by the assistance of the Ligaments, Tendons, Membranes, &c. the Parts are so straightly knit together, and so abound with Sanguinary Vessels, that oftentimes upon the slightest hurt, the greatest Symptoms ensue, if you order not every thing aright.

CHAP. III.

Of Bones.

A Bone is a Similar Part, cold and dry, composed of Seed, that it might afford strength to the Body, and help its motion.

Naturally, 1. It is hard. 2. Covered with a Membrane. 3. White, with some Redness. 4. Hollow, or Spungy. 5. About the Extremities covered with a Cartilage. 6. Smooth. 7. Moistened with a fat Humor.

It is *nourished* by Blood brought from the Arteries (every where so small, excepting the lower Jaw, that Writers of great esteem have denied them to the Bones) but especially contained in the Marrow.

The *Marrow* is invested with a Membrane, it self is altogether insensible; in the Cavities of great Bones, 'tis White mixed with Red; in the

lesser, White ; in the Spungy Bones, soft and juicy.

Its *Sense* it borrows from the Covering Tunicle; for the most curious Observer never saw Nerves.

The Bones are *joynd together*, partly for the greater firmness, partly for the better Motion.

That Conjunction which is for their firmness, is called *Symphysis*, and is six-fold.

1. *Suture*, as in the Bones of the Skull.
2. *Harmony*, which is by a right or oblique Line, as in the upper Jaw.
3. *Gomphosis*, as the Teeth in the Jaws.
4. *Sincondrosis*, which is by an interposing Cartilage, as in the *Os Pubis*, or the *Sternum*.
5. *Syneurosis*, which is by the assistance of a Ligament, as the Thigh-Bone with the Hips.
6. *Syssarcosis*, which is by the accession of flesh, as in the *Os Hyodis*.

That Conjunction which is for Motion, is called Articulation, and is twofold.

1. *Diarthrosis*, to wit, a loose Articulation : And
2. *Synarthrosis*, to wit, a straighter Articulation.

And both is performed by three manner of wayes. 1. *Enarthrosis*, When the Cavity receiving the Bone is great, and the process of the Bone to be received also great, as in the joyning of the Thigh-bone with the Hips.

2. *Arthrodia*, When the Cavity is superficial, and the Process little, as in the hinder part of the Head, with the first Vertebra of the Neck.

3. *Ginglymus*, When one Bone takes into its Cavity the Process of another, and contrariwise the other Bone receives into its Cavity the Process of the former ; as the Bone of the Thigh with the *Tibia*, and the Shoulder-Bone, the *Ulna*.

The *number* of Bones is greater in Children than in adult People ; for by years, many of them so grow together, as that they cannot be separated any more ; also their number is much lessened, when consideration of the Processes and small Bones is not had ; from hence it is that some reckon 360, some, 304, others, 249.

The use of the Bones, is, 1. To be a stay or support to the Body. 2. Together with the flesh, to give it its shape. 3. To help Motion. 4. To defend several Parts.

Although the Bones ought to be described in particular by us in their proper places, yet an Anatomist cannot be perfect, that is ignorant of the Bones ; therefore, before we begin the examination of other Parts, we think it convenient to exhibit to you the *Skeleton* in this place.

The Bones of the *Head*, we divide into the *Skull* and *Jaws*.

The *Skull* consists of eight Bones ; which are, 1. The Bone of the Forehead. 2, & 3. Bones of the fore part of the Head 4, & 5. Bones of the Temples. 6. The Bones of the hinder part of the Head. 7. *Os Sphœnoides*. 8. *Os Ethmoides*.

The upper *Jaw* consists of eleven Bones, to wit, five of each side, and one common ; of these,

1, 2. *Os Zygomaticum*. 3, 4. *Os Lachrymale*. 5, 6. *Os Maxillare*, 7, 8. Bones of the Nose. 9, 10. Bones of the Palat. 11. *Vomer*.

The under-*Jaw* hath only one Bone, except the Cavity for the Teeth, of which are numbered 32.

Four *Fore-Teeth*, two *Dogs* or *Eye-Teeth* ; all the rest are Grinders.

In the Internal parts of the *Ear* are four Bones, which

which are called, 1. *The Hammer.* 2. *The Anvil.* 3. *The Stirrup.* 4. *The round Bone.*

The Mouth hath only one Bone, called *Os Hyoidis.*

The Neck is composed of seven *Vertebra's*; of these, 1. Is called *Atlas.* 2. *Epistrophens.* 3. *Axis.* the rest want Names.

The Bones of the Breast, in the upper parts, are, The two *Collar-Bones*; on the sides, fourteen *true Ribs*, ten *Barstard*, in all 24. On the fore-part, the *Sternum*, with the *Sword-like Cartilage.*

In the upper part of the Back are two *Shoulder-Blades*; in the middle twelve *Vertebra's.*

The hinder part of the *Abdomen* exhibits five *Vertebra's* of the *Loins*, to which are joyned the *Os Sacrum*, and to it is joyned the *Os Coccygis.*

On the side of *Os Sacrum* there is the *Os Innominatum*, or Bone of the *Hip*, which is divided, 1. Into *Os Ilium*, which is the greatest. 2. *Os Ischium*, the lowest. 3. *Os Pubis*, in the fore-part.

The Arm consists of only one Bone, which is called the *Shoulder-Bone.*

The *Cubit* of two, the uppermost of which is the *Ulna*, the lowest, the *Radius.*

The *Metacarpus* contains eight Bones, to which as yet there are no Names given; the *Carpus* four.

The *Fingers* 10, each of which consisting of three Joynts.

Besides these, about the Joynts of the Fingers, are found the *Ossa Sessamoidea*, 10, 12, 15, or 20.

The *Thigh* hath only one Bone.

The *Leg* consists of two, one of which is the innermost, called *Tibia*; the other, which is outermost, the *Fibula.*

Between

Between these, and the Bone of the Thigh, is Placed forwards, the Knee-Bone.

The *Tarsus* hath seven Bones, which are, 1. *Tarsus*, or, *Astragalus*, 2. *Calx*, or the *Heel-Bone*. 3. *Os Naviculare*, or, *Cimbiforme*. 4. *Os Cuboides*, or, *Tessera*. 5, 6. 7. *Ossa Cuneiformia*, or *Sphænoidea*.

The *Metatarsus* hath five Bones.

The Bones of the *Toes* are 14; for there's only two in the great Toe.

The *Ossa Sessamoidea* are found here also, 10, 12, sometimes 15, or 20.

Chirurgical Consideration.

The Bones are subject to many Diseases. *Fractions* and *Dislocations* are already discoursed of, as also *Putrefaction*: But seeing there may be several wayes produced, we will declare those which are chiefly worth our consideration.

Preternatural Humors, by what cause soever, either General or Particular, penetrating the Bone, sometimes produce an *Ulcerous Excreescency with moistness of the Bone*; sometimes a *Cancer of the Bone*, to wit, *Spina Ventosa*, effects necessary to be distinguished; which because no Physician hath made it his business to describe, I will impart that which Reason and Experience hath taught us.

The cause of an *Ulcerous excreescency, with the Humidity of the Bone* (which effect is called by the *Dutch, een Beensuyger*) is preternatural Phlegm, depriving the Bone of its temper and hardness; the flesh cannot be said from this soft foundation to keep also its Natural state; but its nourishment passeth into soft spongy flesh, which by degrees encreaseth, and at length causeth an Ulcer; from

whence the Tendons, Ligaments, and Nerves are corrupted, and the whole Member subject to danger.

In this case you must not flatter your self, that Medicines can effect any thing before you come to the bottom, that is, the Bone it self: And the Bone being made sound, the Ulcer will be cured, and the flesh return unto its natural constitution. It is therefore necessary to make Incision, even down to the Bone it self, and if there be a great excrescency, *extirpate it*; and if it be observed to rise again, apply an *actual Cantery*, alwayes consideration being had of the Bone.

Remedies proper against Putrefaction of the Bones, are already, both by us and others, sufficiently described. To take away the *Excrescency* of the *flesh*, Oyl of Vitriol, Oyl of Antimony, Spirit of Vitriol, *Ung. Aegyptiacum*, *Fuscum* of *Felix Wurtz*, are very good; and this Powder is excellent.

Take the Restorative Powder, an ounce; white Vitriol, a dram; prepared Arsnick, two drams: Mix them.

Sprinkle it upon the proud Flesh, laying over it a drying Plaister, and it will make a thick Escar, without great pain, which may be taken off the next day.

2. The Cause of a Cancer of the Bone (by the Dutch named *een Beenvreeter*) is a sharp Humor, first corroding the Bone, then making its way through the *Periostium*; then follows an Ulcer of the Flesh and Skin, incurable, before the Bone be made sound; its Orifice is very little, the edges are pale, the Matter that flows forth, is thin, the flesh soft, and somewhat swell'd, at least (as we have spoken

spoken in an *Ulcerous Excrefcency*) encreafeth of its own accord.

Here alfo is Incifion neceffary, made according to the length of the Part, to the Bone it felf; forthwith muft be applied thofe things that *correct Putrefaction*, to wit, *Euphorbium*. Spirit of Vitriol mixt with Spirit of Wine, &c.

I have not only once experienc'd the Powder of Turpentine hardned by boiling, to be of great virtue, mixt with *Ung. Fufcum* of *Felix Wurtz*, or *Aegyptiacum*; an *actual Cantery* is very convenient: The Cure alfo will be accelerated, if inftead of Tents made of Lint, you ufe Elder-pith, becaufe this inhibes the fharp and thin Humors, by which the action of Nature is promoted.

Seeing that for the moft part thefe Difcafes arife from the diftemperature of the whole Mafs of Blood, and when one Cancer is almoft cured, another appears in fome other place, therefore 'tis highly neceffary to have regard to the whole Body: For which purpofe, the following, or the like Medicines may be taken.

Take Roots of Comfrey the great, Osmund Royal, *China*, *Sarfaparella*, of each an ounce; Guaiacum-Bark, two ounces; Rhubarb, fix drams; Senna, ten drams; Agarick, fix drams; Cloves a dram; Cinamon, two drams: Infufe them 24 hours in a fufficient quantity of Barley water, then boil them with a gentle fire, and to two quarts of the ftrained Liquor, add of Syrup of Comfrey of *Fernelius*, four ounces: Make it into an Apozeme.

Let the Patient, of a middle age, take three, four, or five ounces; it purgath gently, forwards the Cure, and preferves from further mifchiefs.

3. The *Bones* also are subject to certain Tubercles, called *Tophs* and *Nodes*. These for the most part are the Symptoms of the Pox. I shall only set down here some External Medicines, approved by long Practice.

Take Oyl of Venice-Turpentine, of *Euphorbium*, of *Guaiacum* distilled, of each two drams; *Crude Opium*, half a dram: Make it into a Liniment.

Or,

Take Mastick, Male-Frankincense, of each two drams; *Ladanum*, half an ounce; Quicksilver extinct in Turpentine, an ounce: Crude Antimony, three drams; Crude Opium, a dram; Venice-Turpentine, as much as sufficeth to make it into a Plaister.

Or,

Take the Juice of Housleek, Henbane, Celandine the greater, of each a dram; Mans-fat, three drams; Oyl of White Lillies, Camomile, of each two drams; Boil them to the consumption of the Juices, afterwards add of Mercury sublimate, a dram and scruple; Venice-Sope, two drams; Crude Antimony, three drams; Mummy, *Opium*, of each a dram; *Ladanum* and Wax, as much as is sufficient to make it a Plaister according to Art.

4. Moreover it is to be observed, that no *Fat*, or *Oily Medicines* are to be used to the Bone, except they are extream drying, or that by Distillation, have lost all their Unctiousness.

CHAP. IV.

Of a Cartilage.

A Cartilage is a similar, *Spermatick Part*, drier and harder than a *Ligament*, but moi-ster and softer than a *Bone*, rendering the *Articulation* the more pliable, and defending several *Parts* from external injuries.

Difference] Some are softer, especially about the *Joynts*; others harder, and differing not much from the nature of a *Bone*.

'Tis nourished by little *Arteries*.

It is endowed neither with *Nerves*, nor *Membrane*, and by consequence without sense.

Its use is to facilitate motion, and to defend some *Parts* from external injuries, whereupon it is scarce subject to any.

Chirurgical Consideration.

Not seldom are the *Cartilages*, together with the *Bones*, both corrupted and cured; other particular *Diseases* it scarce hath any, besides too great a *hardness* or *softness*: Of both which we will give *Examples*,

1. The *Epiglottis* sometimes is so indurated, as that it not only deprives of *Speech*, but also hinders the *Patient* from swallowing, except a great piece; for *Drink* and all other liquid things pass into the *Wind-pipe*, as not being well closed by the stiff *Epiglottis*. This *Disease* is incurable.

2. The

2. *Glottis*, or Chink of the *Larinx*, either from Meat, or Drink, or Medicine, is sometimes so straight closed together, as the Patient cannot make any noise; this we remedy by the following Medicines; Purgings and Bleeding, if necessary, having gone before.

Take Milk, six ounces; Yolk of an Egg; White Sugar, three drams: Mingle them; let the Patient take often a Spoonful or two.

Or,

Take Frankincense, Mirrhe, of each a scruple; Eastern Saffron, half a scruple; Juice of Liquorras, a dram and an half; Gum Tragaganth, two drams; Sugar, as much as sufficeth to make them into Troches, alwayes holding one of them in the Mouth, and swallowing them down.

I deem those Anatomists to have committed a great Error, who have ascribed this Malady to be an *Inflammation of the Larinx*; although I deny not, but that the Cartilages may be inflamed, and also corrupted; yet 'tis certain, that which they have set down, is not of the Cartilages, but of the neighbouring Glandules, and of the fleshy parts of the Jaws; for it would not be so frequently cured, because an Inflammation and corruption of the *Larinx* I always esteemed a mortal Disease.

2. The *Sword like Cartilage of the Breast* is oftner than Practitioners take notice of, unnaturally bent inward, from *Humors flowing* in too great quantity; and so inclining with the point inward, presseth the Stomach, from whence comes a diminution of the Appetite, a Vomiting of what is taken in, with a continual pain of the Stomach,
and

and a wasting of the whole Body; 'tis easie for an Anatomist, by the touch to apprehend this Malady, and in the space of few hours to cure it; for otherwise men are miserably troubled for many years.

'Tis corrected by a large-mouth'd Cupping-glass, outwardly applied upon the depressed Cartilage, and being there fixt, let it remain, till breathing is hindered; then suddenly remove, and the Cartilage oftentimes at the first time, returning again into its natural place; which if it appears not to do, the Chirurgion must repeat this Operation once or twice; then having embrocated the Part with Oyl of Roses, and Myrtles, apply this Plaster to the Part, which must remain there several dayes.

Take Bistort-Roots, Cypress Nuts, of each a dram; Mastick, Frankincense, of each half a dram; Balauſtians, a scruple; Oyl of Nutmegs Express, one dram and an half; Naval Pitch, and Turpentine, of each enough to make it into a Plaster.

CHAP. V.

Of Ligaments

A Ligament is a Similar, Spermatick, dry part, adhering firmly to the Bones, tying the parts of the Body mutually together.

Difference.] Some are Broad and Membranous, some Round and Nervous. 'Tis here to be observed,

ved, that the Names *Membranous* and *Nervous*, are much used both by Writers and Practitioners, and hath deceived many of them; for 'tis requisite to know that here it hath regard only to their external form, not their internal essence; for the Ligaments, both the Membranous and the Nervous are void of Sense, which they would not be, if they were composed of their true substance of Nerve or Membrane.

There is no Ligament *hollow*, if you except the slender *Ligaments* of the *Womb*; and are all destitute likewise of *Sense* of *Motion*, as from themselves.

Use is to connect the parts of the Body, especially the Bones, and preserveth them from continual Luxation.

Chirurgical Consideration.

1. Ligaments hurt, by reason of their want of sense, seldom draw other parts into consent, and by the use of drying Medicines, are easily cured. I cannot but again in this place (taught by Experience) commend the *Restaurative Powder*, of which this is the Description.

Take Roots of Comfrey the greater, Aloes Succotrine, *Calcis viva*, of each two ounces; Mastick, Mirrhe, Mummy, of each two drams; Precipitate, two ounces: Make it into a Powder.

Here diligently at the first time is the weak heat of the Ligaments to be considered, seeing it may give occasion to a copious collection of Humors, and other grievous Symptoms.

2. The Ligaments also are not seldom *Relaxt*: Yea, although the ignorant do contradict, sometimes

times they are so much extended that they may give way to a Luxation, which the Sciatick pain hath more than once given us example of; in such a case, external Bleeding and Purging profit much; outwardly the Application of corroborating and discussing Topicks: The following Plaister is excellent.

Take Stiptick Plaister of *Crollins*, an ounce; Oyl of Earth, of Tiles, of each a dram: Make it into a Plaister to be spread upon Leather.

CHAP. VI.

Of Membranes.

A Membrane is a Similar, Spermatick Part, broad, soft, dilatible, white, investing the Parts, and carrying sense to them,

Difference.] Some are very thin, others thick; some fleshy, but for the most part not.

The Parts which invest, are properly call'd *Membranes*; those which contain the Humors, *Tunics*; and those which cover the Brain, *Meninges*.

It is endued with *sense* from it self, for all Membranes are sensible; yea, the Nerves themselves owe their sense to the Membranous substance of them.

Membranes therefore only are the true Organs of feeling, they serving the Animal Spirits to this purpose.

Use is, 1. To invest the parts of the Body.
2. To defend it from injuries. 3. To keep them united.

united. 4. To strengthen them. 5. To give them sense. 6. To close the Mouth of the Vessels, that the Nutrious Blood be not carried too suddenly into the Part, or out of it, into the Vein it self. 7. To separate the Parts.

Chirurgical Consideration.

The *Membranes* being so very sensible, they cannot bear sharp Medicines; they are not endowed with great quantity of Blood, whence when they suffer a solution of continuity, they are not easily united again. But I have observed oftentimes that by the Muscles, and the assistance of the Quittour, they are joyned together, as in the Bladder it self, whose Wounds and Ulcers otherwise are esteemed incurable.

CHAP. VII.

Of Fibres.

A Fibre is a Similar, Spermatick Part, dispersed through the skin, flesh and Membranes, to make them the stronger, and being naturally distended, to contract again into the same manner.

Differences are, right, oblique and transverse, and some round; the right attract, the oblique thrust forth, transverse retain, round constrain; but this they do not so by their own singular virtue, as by the common virtue of the Member which they serve, and from whom they have their sense and nourishment, for of themselves they are senseless.

Use, is, to strengthen the Membranes, Skin,
and

and Muscles, and when dilated, to reduce them into their natural state.

Whether the *Blood* it self hath *Fibres*, as many have delivered, and as it seems very probable to us, shall be explained in another place.

Chirurgical Consideration.

These offer nothing worthy consideration, except that, when they are wounded, the consolidation of the *Flesh* and *Skin* is the longer, and there is a greater stiffness of the *Muscles* about the place, and makes them difficulter to contract and extend. The *Ductus* of the *Fibres* is diligently to be observed by them which are to make any curious Incision.

CHAP. VIII.

Of Veins.

A *Vein* is a Similar, *Spermatick*, *Membranous*, long, hollow Part, every where joyned by *Anastomoses* to the *Arteries*, receiving the *Blood*, wanting further *Concoction* from them, and carrying it to the heart and Liver,

Difference.] Veins of a fourfold condition are found in the Body.

1. *Vena Cava.* 2. *Vena Porta.* 3. *Vena Pulmonalis.* 4. *Vena Lactea.*

Of the last of which, a more convenient occasion will be offered to treat of in the following.

The *Vena Cava* and *Porta* take their beginning from the Liver. There are those which would

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have

have them come from the heart, from a weak Argument taken from unborn Embrio's. But where I find many Branches inserted in the Liver, few or none in the Heart; yea, I have observed, that it hath not entred into the Heart it self, but only to be joyned to its right Auricle: I rather embrace the old Opinion, willingly granting those honours to the Liver that I think belongs to it.

That the Roots of the Vena Cava and Porta were united by mutual Inosculations, the old Anatomists perswaded themselves, but the curious Inquisition of the Moderns hath both sound out and clearly demonstrated, that they mutually touch one another, but not so united, that the Blood can pass out of one into the other; for the extremities of the foresaid Vessels, by means of the *Parenchyma* of the Liver, do so mutually consent, that Milk or any liquid thing cast into the *Vena Porta* with a Syringe, finds an easie passage into the *Vena Cava*, without either any injury of the Veins or the *Parenchyma*. Concerning which, read *Glisson. Anatom. of the Liver, pag 272.*

Veins have only one *Tunicle* with many *Valves* within, especially in the external Joyns.

They are *nourished* with Blood from the *little Arteries*, not that contained within themselves.

They are endowed with *feeling*, both from themselves, and sometimes from the Nerves.

Use is, to receive the Blood not sufficiently elaborated from the Arteries, and return it to the Heart and Liver, there to be more perfectly concocted.

For the better Methods sake in the following, we must be forced to describe all Veins here particularly, and divide them into their Branches.

Vena

Vena Cava taking its beginning in the Liver, as is before said, is separated into the *ascending Trunk*, and *descending*.

The *Ascending*, which is the greater, perforates the *Diaphragm*, and is divided into four Branches: of these,

1. *Phrenica*, which disperseth it self through the *Diaphragma* and *Pericardium*.

2. *Coronaria*, appropriated to the Basis of the Heart, proceed from the Trunk it self, after it hath penetrated the *Pericardium*, and inwardly united it self by a large fleshy Orifice to the right Auricle of the Heart.

3. *Azygos*, or *sine pari*, coming from the right side of the same Trunk, when ascending, it hath passed the upper part of the *Pericardium*, affording chief Branches to the eight lower Ribs, then about the fleshy appendices of the *Diaphragm*, it enters the Cavity of the lower Belly, where, on the left side 'tis inserted into the Emulgent Vein, on the right into the Trunk of the *Cava*.

4. *Subclavia*, from whom comes forth several Branches which go both upward and downward: The Superiors are,

1. *Muscula Superior*.

2. *Jugularis, externa & interna*; that on both sides (sometimes single, sometimes double) goes to the Neck, Head and Face; this to the thick Meninx of the Brain, to whose third Sinus its greater Branch is united.

The Inferiors are,

1. *Intercostalis*, serving the four upper Ribs, and their Intercostal Muscles.

2. *Mammaria*, which is carried to the Breasts.

3. *Mediastina*, which goes to the Mediastine and Thime.

Q 2

4. *Coro*

4. *Cervicalis*, which goes to the Neck.
5. *Muscula inferior*, which goes to the Muscles of the Neck.

6, 7. *Thoracica*, inferior and superior, which goes to the Muscles of the Breast.

The Subclavials being come out of the Breast, are called *Axillares*, then go to the Arms, where they are divided into 3 great branches, which are,

1. *Cephalica*, in the Hand, between the little Finger and its next; 'tis named *Salvatella*: Its Branches are variously mixt with the Branches of the Median.

2. *Basilica*, or Liver-Vien.

3. *Mediana*, which proceeds with others branches from the *Basilica*.

The descending Trunk, which is the lesser, and is undivided till it comes to the fourth *Vertebra* of the Loins, then it communicates,

1. *Adipsofa*, to the Membranes of the Kidneys.
2. *Emulgens*, to the Kidneys themselves.
3. *Spermatica*, to the Testicles.
4. *Lumbares*, two, three or four, to the Loins, and to their *Vertebra's*.

Nearer to the *Os Sacrum*, it is separated into two Branches called *Illiaci*. Before they go to the Feet, the Trunk it self presents,

1. *Muscula Superior*, which goes to the Muscles of the Loins and *Peritoneum*.
2. *Sacra*, sometimes single, sometimes double to the *Os Sacrum*.
3. *Muscula Media*, to the Buttocks.
4. *Hippogastrica*, to the Bladder and its Neck; to the *Sphincter Ani*, to the *Penis*, and to the neck of the Womb.
5. *Epigastrica*, to the Muscles of the *Abdomen*, and to the *Peritoneum*.
6. *Puden-*

6. *Pudenda*, to the privy Parts.

7. *Muscula Inferior*, to the joynt of the Hips.

The black Branches, as soon as they have left the Cavity of the Belly, are call'd *Crunales*.

From these proceed,

1. *Ischiatica minor*, which goes to the Skin, and Muscles of the Hip.

2. *Ischiatica major*, to the Hip, then to all the Toes.

3. *Proplitea*, to the Ham.

4. *Suralis*, to the Muscles of the Calf of the Leg.

5. *Saphena*, to the Knee, Ankle, and to the upper part of the Foot, and to the great Toe.

The *Vena Cava*, where it comes out of the Heart, receives three *Valves*, called *tricuspidales*, looking internally, for this purpose, that the Blood may freely enter into the Heart, but to hinder its return.

The Use of the *Vena Cava* is, to receive the cruder Blood from the Arteries, and remit it to the Heart.

Vena Porta, much lesser and looser than the *Vena Cava*, ariseth from the Umbilical Vein, and with many Roots is inserted into the Liver; without the Liver, it is divided into Trunk and Branches, all which are distributed into several parts contained in the lower Belly.

From the Trunk proceeds,

1. *Gastroepiplois*, which goes to the Caul and Stomach.

2. *Intestinalis*, to the intestine *Duodenum*.

3. *Cystica Gemella*, to the Gall.

4. *Gastrica minor*, to the left side of the Stomach.

Then this Trunk is divided into two great branches, the Splenick and Mesenterick.

Ramus Splenicus, sometimes joyning to the Sweet-bread, sometimes passing through it, divides into four little Branches, as soon as it hath left it; which are these,

1. *Vena Gastrica major*, which goes to the Spleen, communicating from thence three or four small Veins to the Stomach: These being blown up in living and dead Bodies, manifestly declare, nothing at all can enter into the Cavity of the Stomach, and so by consequence no Humor coming from the Spleen, as long since Learned men have imagined, taught and writ, seeing they terminate in the Coats of the Stomach, and open not into the Cavity it self.

2. *Epiploica dextra.* 3. *Coronaria stomachi.*

4. *Epiploica sinistra.*

Mesentericus ramus is also divided into four others; of these, the

1. Retains its old name, and is distributed with fourteen or more Branches through the Mesentery.

2. *Vena Hemorrhoidalis*, and goes to the Spleen, the Womb, and the right Intestine.

3. *Vena Cæcalis*, to the blind Intestine.

4. *Ramus Mesocolicus*, and goes to the Intestine call'd Colon.

The Use of the *Vena Porta* is, to take the Blood not sufficiently elaborated, from the Arteries, and carry it to the Liver, for the perfecter concoction, and for the separation of the Choler.

Vena pulmonalis (which the Ancients corruptly call'd *Arteria venosa*, seeing that it hath but on'y one Tunicle, beats not of it self, nor returns the Blood)

Blood) coming out of the left Ventricle of the Heart, with a wide Orifice goes to the Lungs, to receive the more imperfect Blood from the Pulmoniack Artery, and carries it to the Heart.

About its egress from the Heart, it hath two *Miter-like Valves*, hindring the regrefs of the Blood to the Lungs.

Its Use is, to carry the Blood received from the Pulmoniack Artery, into the left Ventricle of the Heart.

Chirurgical Consideration.

1. We have in another place treated of the *Wounds of Veins*; we shall only add, that if the bandage, by which you stay the bleeding, be bound too hard, it will easily induce a Gangrene.

2. We have admitted only four general *Indications of Bleeding*; to wit, for the *Refrigeration*, *Imminution*, *Revulſion* and *Derivation of the Blood*; but special Diseases requiring one Vein to be chosen before the other, which are these following; in a *Delirium* and great pain of the Head, the Vein of the Forehead or *Præparata*, or *Vena puppis*, may be cut; sometimes the *Temporal* or *Saphena*.

In an Inflammation of the Eyes, the *Cephalica*, and if you desire to evacuate from the whole Body, the *Basilica* or *Mediana*.

In a *Quinsey*, the *Ranina*, which must be cut with a little Incision, seeing we cannot scarce by any means stop the Flux of Blood, and sometimes also the *External Jugular*.

In a *Pleurisie*, the *Basilica* of the affected, not opposite side; here is requisite the greatest Circumspection; for under it lies the Tendon of the Muscle Biceps, and near it the Artery.

In anger, fear, or any Casualty, &c. the *Mediana* or *Basilica*.

In Chronick Diseases, and quartane Fevers; the *Salvatella*, especially in the Full and New Moon.

In Women that lie in, and in suppression of the *Menses*, the *Saphena*; In the *Sciatica*, the *Ischiatica*.

CHAP. IX.

Of Arteries.

AN Artery is a Similar, *Spermatick*, *Membranous*, round, *cavous* Part, joyned every where to the *Veins*, by the assistance of its *oscultations*, containing the *Nutritious Blood* with the *Vital Spirit* carrying it to all the *Parts* of the *Body*.

Difference is twofold, the great Artery or *Aorta*, and *Pulmoniack*.

The great Artery comes from the left Ventricle of the Heart; which except in the Brain and other softer parts, every where else consists of a *double Coat*; the outermost of which is of the thickness of the *Veins*; but the inmost is five times thicker, lest by continual pulsation about the hard and solid Parts, it might incur an incurable Rupture.

It receives three *Valves*, call'd *Sigmoïdes*, looking outwardly.

Coming out of the Ventricle of the Heart, with a great Orifice before it perforates the *Pericardium*, it affords to the Heart it self the *Coronary Artery*; when past the *Pericardium*, it is divided

ded into the *Ascending* and *Descending Trunk*.

The *Ascending Trunk*, which is the lesser, resting upon the Wind-pipe, is separated into the two *Subclavials*, from which, being yet within the Breast, proceeds,

1. *Intercostalis superior*, proper to the four upper Ribs.

2. *Mammaria*, to the Breasts.

3. *Cervicalis*, to the Muscles of the Neck.

4. *Carotis externa & interna*, proper to the Larinx, Tongue, Neck, Head and Brain.

When they have left the Thorax, they are call'd *Axillares*, and carry nourishment to the outward part of the Breast.

1, 2. By the *Thoracica superior & inferior*. 3. By the *Scapularis*. 4. By the *Humeraria*.

Then they approach the Arm, where they accompany the Branches of *Vena Cava*, and are call'd by the same name as they are.

The *Descending Trunk*, which is the greater, being yet within the Breast, sends

1. The *Intercostalis superior*, to the eight lower Ribs.

2. The *Phrenica*, to the Diaphragm and *Pericardium*

Then having perforated the Diaphragm, it communicates,

1. The *Cœliaca*, to the Stomach, from which proceeds the *Splenica* and *Gastro Epiploica dextra*.

2, 3. *Mesenterica superior & inferior*, to the Mesentery.

4. *Emulgens*, to the Kidneys.

5. *SpermatICA*, to the Testicles.

6. *Lumbaris*, to the Loins.

7. *Muscula superior*, to the Muscles of the Abdomen.

Then

Then at length it is divided into the two *Iliac* Branches: about this division exhibiting,

1. *Muscula superior*. 2. *Epigastrica*. 3. *Hypogastrica*. 4. *Umbilicalis* 5. *Pudenda*.

Out of the Abdomen they change their names, and are call'd *Cruales*, and so they descend into the Feet, all along accompanied with the Veins, from whom they borrow their names.

Use is, to carry the nutritious Blood with the Vital Spirit into all parts.

Arteria pulmonalis (which the Ancients did falsely call *Vena Arteriosa*, seeing it hath Pulsation, is made up of a double Coat, and contains the Nutritious Blood) issuing out of the left Ventricle of the Heart, with a double Branch enters the Lungs, and is distributed through them by many little Branches, carrying to them the Nutritious Blood: And then what in the Blood is not sufficiently concocted into the Pulmoniack Vein, by whose means 'tis returned into the left Ventricle of the Heart.

It hath three *Valves* called *Sigmoides*, which look outward, lest the Blood that having entred it, should slide back again into the Ventricle of the Heart.

Its *Use* is, to convey the Blood out of the right Ventricle of the Heart, into the Lungs, by which they are nourished, and what remains above, then serves for their Nutriment, is brought back again by the Pulmoniack Vein into the left Ventricle of the Heart.

Here it pleaseth the curious Observers of Anatomy to take notice of (besides the eleven *Valves* which we have declared to be disposed in the four already named Vessels) that many others are found

found in the Heart, which as yet want any certain name.

Chirurgical Consideration.

In an *Hæmorrhage of the Nose*, the Blood flows from the Arteries, not Veins, which nor only the colour of the Blood witnesseth, but also the great weakness which always follows such a Flux: I use to stay it after this manner;

First, Let a Vein be opened, then let there be applied in men, to the Testicles, in Women, to the *Hypogastrium*, a linnen Cloth four double wet in cold water; or let the face of the Patient be suddenly sprinkled with cold Water: Internally let there be exhibited now and then a spoonful of the following Mixture.

Take Plantain-water, two ounces and an half; Alexipharmick-Water, half an ounce; Cinamon-Water, three drams, Confection of Hyacinth, half a dram; Dragons-blood, *Lapis Hematidis*, of each fifteen grains; Julep of Roses, an ounce; *Laudanum Opiat* two grains; Spirit of Vitriol, six drops: Mix them.

The following Water is also commended.

Take *Lapis Prunella*, half an ounce; Plantain-Water, six ounces; let it be divided into three Doses.

The manner of opening *Arteries*, delivered by the Ancients, is so dangerous and frightful, as that there is none of the Moderns, but what dislike it; yea, *Arteriotomy* hath been wholly rejected, had not the diligence of their Posterity found out other wayes: That which I (with others) have
found

found alwayes to be the best of them, I will here set down.

Chirurgeons were wont to tie a Bandage about the Neck; but seeing when it is hard bound, it is very troublesome, it is better that the Ligature be made under the Arm-pits, which must be so straight that the Jugular Veins, and Carotide Artery may appear both by swelling and touch; then let the Arteries be compressed by the Thumb, a little below, where you intend to make the Incision; and being opened (which must be done by a steddyy and strong hand) take forth as much Blood as is sufficient; which done, strew Astringent Powder upon the Wound, then put over it a double Linnen Cloth with a Plate of Lead, then bind it up with a convenient Bandage, and within five or six dayes space it will be perfectly well.

In the Head-ach, Madness, Epilepsie, great Inflammations of the Eyes or Ears, the *Arteries* of the *Forehead*, *Temples*, or those *behind the Ears*, are opened; as also the *Arteria puppis*, all of them being branches of the external Carotide.

In the Inflammations of the Liver and Diaphragm, the Artery between the *Thumb* and fore-finger is opened; in palpitations of the Heart, either *that*, or the *Saphena* is to be opened.

Other Arteries are not to be opened. except a Bone lies under them, for fear of an Aneurism.

CHAP. X.

Of Nerves.

A Nerve is a Similar, Spermatick, Membranous, round, white, hollow part, serving for the carriage of the Animal Spirits to the Parts for Sense and Motion.

The Nerves take their Original from the Brain, and are divided within the Skull into eight Pares; without the Skull, to wit, those that come out of the Spinal Marrow, into thirty Pares; seven of which proceed from the *Vertebra's* of the Back, five from the *Vertebra's* of the Loins, six from the *Os Sacrum*.

The eight Pare within the Skull, proceeding from the Brain, are,

1. *Smelling pare*, which adheres to the Mamillary Processes.

2. *Optick pare*, which is the greatest, and united in the middle.

3. *The pare that moves the Eyes.*

4. *The Tasting pare.*

5. *The second tasting pare.*

6. *The hearing pare.*

7. *Par vagum*, which is vested with strong Membranes; it descends through the Orifices of the Bone of the hinder part of the Head to the Throat, afterwards sending Branches to the Neck of the Larinx, to the Muscles of the Tongue, and *Os Hyodis*; then is divided of each side into the external and internal Branch.

The

The right External Branch, having sent some Branches to the Muscles of the Breast, makes the *right recurrent Nerve*; this contributes to the Voice, as also to the feeling in the *Pleura*, the Coat of the Lungs, the *Pericardium* and to the upper Orifice of the Stomach, seeing all those Parts obtain Branches from it.

The left external Branch constitutes the left recurrent Nerve, which goes to the same Parts, as we have declared the right doth; being brought to the said Orifice of the Stomach, it is joyned to the right recurrent, and so goes to the lower Orifice of the Stomach, and to the lower part of the Liver.

The right Internal Branch sends Branches to each intercostal Muscle; then having perforated the Diaphragm, furnisheth all the parts of the lower Belly with a Nerve, ending about the *Os Sacrum*.

Of the left Internal Branch is the same distribution.

8. The Part moving the Tongue.

The Nerves have a *Cavity*, but so little, not to be distinguished by the sight, except in the Optick Nerves, and those of the *Pudendum*.

Use is, to carry the Animal Spirits for sense and motion of the whole Body.

Chirurgical Consideration.

The Cure of wounded Nerves and Tendons is so like, as it hath been more than once the occasion of confusion amongst the best Authors; therefore for the better distinction sake,

1. The frequent *contusion of the Nerves* by a *Fall* or *Blow*: the Skin having suffered a solution of continuity, there happens an Ulcer, and many other

other Symptoms, from the afflux of Humors. It requires the *same Cure* we have proposed in another place, of Wounds of the Nerves.

But if the contused Nerve be not bare, which may be discerned from the greater and more continual pain than is usual in a simple contusion of the Flesh, the greatest care is, that the coagulated Blood be as soon as possible resolved; for if it should suppurate, the Nerve easily would putrefie; therefore let there be applied a Cloth dipt in one or other of the following Oyles, warm to the affected Part.

Oyl of Castor, Worms, Dill, Rue, Camomile, Rosemary.

Or, let this Fomentation be applied very hot with sponges.

Take our Orrise Roots, two ounces; Leaves of Rosemary, Majoram, Horse-Mint, of each half a handful: Boil them in white Wine for a Fomentation.

Or let the following Plaister be laid on:

Take Sow-bread Roots in Powder, two drams; *Species Diambra*, one dram; Oyl of Castor, three drams; Turpentine, a dram; Plaister of Betony, an ounce; Virgins-Honey, as much as to make it according to Art into a Plaister.

Oyl of Lavender is excellent in this Case, if taken to the quantity of two drops, especially where Convulsions happen.

2. *The Nerves are not seldom obstructed with a pituitous and tough Humor*, from whence a *stupor of the Part*, and sometimes also a stiffness; these Symptoms I used to remove after the following manner, the whole Body, if occasion, being first purged.

Take

Take Gum *Caranna*, half an ounce ; *Galbanum*, an ounce ; Oyl of *Enphorbium*, a dram and an half : Make it into a Plaister.

Or,

Take Mans-Fat, Goose-Fat, of each an ounce ; Oyl of Earth, three drams : Make it into a Lini-ment.

Let the Part affected be *annointed* with it Morning and Evening, then lay on the Stiptick Plaister of *Crollius*, or of *Ladanum* or *Diachilon* with Gums.

You will hasten the Cure, if you use *Internal Corrobratives*, which do wonderfully alter the Nerves, although these things properly belong to the Physitian, yet I think it convenient to prescribe this Decoction of great efficacy, of which, let the Patient take three or four ounces twice a day.

Take Roots of Piony, Sea-holly, of each half an ounce ; Orrise, three drams ; Leaves of Marjoram, Rosemary, of each an handful ; Flowers of the Lime-tree, Lavender, and Lilly of the Valley, of each a pugil ; the lesser Cardamomes, three drams ; Nutmegs, a dram : Infuse them six hours in a sufficient quantity of White Wine, afterwards boil them, & to a quart of the strained Liquor, add three ounces of Syrup of *Stæchas* : Mix them.

There often happens through a *Chronick Disease*, or from a *Luxation* or *Fracture*, a *Contraction* of the *Member*, which is not to be ascribed to the Nerves, but Tendons. This is easily remedied by the use of Oyls and Ointments that have the property of mollifying the indurated Tendons, especially if there

there is to be used a daily extention, either by the Hands, Weights or Instruments.

Take Oyl of Camomile, Olives, Foxes, of each half an ounce ; compounded Ointment of Marshmallows, an ounce ; Capons-grease, an ounce and an half. Make it into a Liniment.

CHAP. XI.

Of the Flesh.

THe Flesh is a similar, bloody, soft, thick part, together with the Bones, to yield a strengthening to the Body, and to cover the spermatick Parts, Difference] Flesh is threefold.

1. Musculous. 2. Glandulous. 3. Viscerous.

Musculous is soft, red, and is properly call'd flesh, and for these many ages hath come under the name of Muscles.

But yet a Muscle is not a Similar Part, but compounded of many others, to wit, Fibres, Tendons, Nerves, a Membrane, Veins, Arteries, that it might be a fitter instrument of voluntary motion, to which the Fibres, Tendons and Nerves do chiefly contribute.

It hath a Tendon in its beginning and end, sometimes round, sometimes broad, sometimes but one, sometimes double.

Its *end* is in that place where the Tendons are greater and more.

Its *Head*, or beginning where the Nerve is inserted, the *middle*, where the flesh swells out.

Use is, to promote voluntary motion, which

is performed after a three-fold manner.

1. When the *Contraction of the Muscle* is so, that the end comes to the beginning, and then its *Antagonist* is quiet.

2. When the *motion* is *Tonick*, so that being contracted, it remains for some time in the same condition.

3. When it relaxeth, so that it is restored into its former seat and quiet, by its *Antagonist*.

The Glandulous flesh is white, thick and spongy, formed of seed (from whence it cannot properly be call'd flesh) to this purpose ordained, 1. To prop up the Vessels. 2. To receive the superfluous Humidities; whence they are called the *Eminories* of the noble Parts.

Some Anatomists make strange diversities of them, but it will appear to any one that diligently enquires into all the Glandules, that they differ not so much in substance, as in their use and Humor.

The Viscerous flesh, or the Parenchymick is red, hard, convenient to prop the Vessels, and to serve for many particular and various operations; this is the flesh of the Lungs, Heart, Liver, Spleen, which shall be treated of in their places.

Chirurgical Consideration.

The Muscles are subject to many Diseases, very many of which are of so little consequence, that they shall not be numbred here; some we have declared in another place: the following require consideration, oftentimes wonderfully exercising the patience and diligence of the Chirurgeon.

1. An *Atrophy* of the whole Body oftentimes comes from an Internal Cause: But if of the Finger,

ger, Hand, Arm, Foot, for the most part from an External Cause. Thus a *Fracture*, *Luxation*, *Contusion*, *Tumor*, too hard *Ligature*, and the like, so vehemently compressing the Veins and Arteries, that it hinders the free passage of the Blood to the Parts, upon which happens an Emission; for where the Vessels are wholly divided or stopt, so that the least quantity of Blood cannot be carried to the Parts, there follows not a wasting of the Part, but a Mortification; in this Case the External Causes must be removed: And care is to be taken that the Blood may again be carried to the Part: Here *chafing* the Part, and the use of *Nettles* (as many will) is good; the Chymists commend much *Alumen Plumosum*; all hot Oyls likewise are here good; and this Ointment is of excellent virtue.

Take fresh tops of Savin, Juniper, Lovage, of each two handfuls; Camomile-Flowers, Juniper-berries, of each two handfuls; Oyl of Bayes, White Lillies, of each twelve ounces; Hogs-grease, three ounces; Dogs-grease, an ounce and half; *Aq. vita*, two ounces: Boil them to the consumption of the moisture; then add to the express'd Liquor, Oyl of Spike, three drams; Juniper, a dram; Mustard-seed in Powder, half an ounce; Roots of Pellitory of Spain, Long-Pepper powdred of each two drams; Yellow wax, as much as is sufficient to make it into an Ointment.

Or,

Take *Pulvis Amianti*, three drams; Roots of Pellitory of Spain, a dram and half;
℞ 2
Castor,

Castor, *Euphorbium*, Oyl of Earth, of each two drams; Gum *Ammoniacum*, an ounce and half; *Ladanum* and Wax, as much as sufficeth to make it into a Plaister.

2. The true reason of the generation of Wens, in my opinion, is this; The mouths of the Arteries appointed to carry nourishment to the Muscles, sometimes are more opened than they ought to be, whether it be by Fall or Blow, or from an internal Cause, especially in Plethorick People, and in Parts disorderly moved, the native heat converts the extravassated Blood into Flesh: But seeing the Member requires not so great a quantity of nourishment, it increaseth into a preternatural swelling; and if this Blood be impure, Choler produceth Pain, Phlegm, Viscousness, Melancholy, a Cartilaginous hardness; and 'tis to be attributed to these Humors, that this preternatural flesh is more yellow, white or livid.

'Tis seldom included in a proper Tunicle, except where Phlegm is its greatest Cause, and then those Tumors are generally in the Neck: The Veins grow big according to the increase of the Tumor, so that under the Skin they appear as thick as ones Thumb.

'Tis not in it self malignant, yet by ill applications may be easily made so: Air is very hurtful, if the Tumor be exposed to it.

For the most part the best Remedies are here used to little purpose, on the contrary, the Tumor more and more increaseth. You cannot promise any Cure, except you take it away by a Thred, Knife, or both.

In the beginniug, the *Medicines* that are to be applied, ought to be very *astringent* and *repelling*,
the

the Part is gently to be rouled, having applied to it, either a Plate of Lead, or a Dichalcitheos Plaister, or of Frogs with Mercury, or the following;

Take Pomegranate-rinds, Bistort-roots, of each one dram; Scales of Iron, Quick-silver, Burnt-Lead, of each two drams; Bole-armenick, *Lapis Hematidis*, of each a dram and half; Turpentine, Wax, as much as is sufficient to make it into a Plaister according to Art.

In the mean time, *Purging*, *Bleeding*, *Scarification*, and the *Application* of *Leeches* are not to be neglected. *Sweating*, also *Watchings* and *Abstinence* profit very much.

But if the Tumor yields not to these Remedies, but daily increaseth, *Suppuratives* are to be applied; but if these within few dayes effect nothing, and the Tumor continuing in the same state, an *actual Canery* may be used; which, let not the contrary Opinions either of Chirurgeons or standers-by hinder; for by its use, the increase of the Tumor will be stayed for a long time; yea, sometimes the Disease will be wholly eradicated.

But if the Flesh begins to repullulate again beyond expectation, the Surgeon ought not to defer to endeavour either by a *Thred* or *Knife* its extirpation; the *Thred* being small and strong, must be twice wound about the neck of the Tumor, and tied with a double knot, which must be straightened the same day, and so every day until the Tumor be deprived of its colour, sense and life, which is within seven or eight dayes; then 'tis to be taken off with a crooked Knife, which is very easie to perform, seeing neither any great pain or Flux of Blood is to be feared: If the *Thred* be

wet in Mercurial or Arsenical water, it hastens the mortification of this Tumor: But in this Operation, a Phlegmatick Body is required; for in other Bodies pain and inflammation do so much afflict the Patient, that 'tis seldom that the *Thred* in a short time should take them off; yet the Chirurgion may, to lessen the Symptoms, and to cool, anoint with a Feather the Part which the *Thred* toucheth, with white camphorated Ointment, of Roses, or the like, continually putting the Patients in mind how that others bear it more quietly.

But if you design to use a *Knife* only, the whole Tumor must be endeavoured to be taken away, except you will consume the remaining by Medicines, which is very rarely effected; besides the Chirurgion must have care that he divides not the greater Vessels, lest there follows a Flux of Blood not to be stopped.

3. The *Viscerous Flesh* belongs rather to the Physicians care, than the Chirurgions.

4. Of the *Glandulous flesh* we have treated particularly in several places. In general 'tis to be noted, 1. That the *Glandules* are of a cold temperament, therefore require hot Medicines, but very illy suffers cold. 2. The *Tunicle* investing them, being eroded or divided, the skin cannot be consolidated, before the whole Glandule, together with its Tunicle, be consumed with the Ulcer. 3. If *Corrosive* Medicines cure not the Ulcers of the *Glandules*, within the space of few weeks, no hope remains of a sound Cure, because of the continual Flux of Humors: And this is the reason why we are for the most part compelled to take them away by Incision.

CHAP. XII.

Of the Skin.

THe Skin is a similar, spermatick part, having some Blood mixed with it, reddish, white, loose, investing the Body, and serving for feeling.

'Tis covered by a Scarf-skin, for the greater defence, every where perforated with Pores, to give vent to the useless Fumes and Vapors; endued likewise with manifest Perforations, as are the Mouth, Nostrils, Ears, &c. whose use is sufficiently known.

It hath Cutaneous Veins and Arteries, as also Nerves.

Its Use is, to cover the Body, as moreover it is the Instrument of feeling.

Chirurgical Consideration.

1. The Skin being discoloured by the Jaundies, Freckles and other Spots, this Water renders again smooth and fair.

Cosmetick Water of Minsicht.

Take white Frankincense, Sugar-Candy, of each two ounces; white Hermodactils, Florence-Orrise, Venice-Borax, of each an ounce; Salt of Tartar, Burnt-Ivory, Camphire, of each half an ounce; Flowers of white Lillies, of the white Water-Lillies, of the white Garden-Mallows, of each three handfuls; Virgin-Honey, three ounces; Goats-Milk, two quarts; Bean-flower-water,

R 4 grains of ... and

and white Rose-water, of each a pint and half; white Lilly-water, and Solomons Seal-water, of each a pint; being mixt, let them be distilled in *Balneo Maria*.

2. *Scars* remaining after the Small Pox, Wounds or Burns, we take away by the following Medicines, if deep and great, first, having used Exedents, then Sarcoricks.

Take Venice-Borax, three drams; Camphire, a scruple; Oxes Gall, a dram; Oyl of Mirrhe, two drams; Capons-grease, half an ounce: Make it into a Liniment.

Or,

Take Powder of the Roots of Snake-weed, of Orrise, of each three drams; Seeds of Melon blanch'd, of Raddishes, of each a dram; Burnt Eggshells, half a dram; Common white Chalk, a dram and half; Frankincense, a dram; Sugar-Candy, three drams; Gum Tragaganth dissolved in Rose-water, an ounce; Goose-grease, as much as sufficeth to make it into a Liniment.

3. *Scabs* blemishing the Skin, are sometimes moist, dry, spreading, eating, crusty, malignant; this difference is of so small consideration, that generals being well known, 'tis not difficult to one that well weighs every thing, to proceed aright in particulars.

Seeing the Cause of this Disease is a sharp, chole-
rick, serous, salt Humor, mixt sometimes with
Phlegm, the often use of *Purgings*, *Sweating* and
Vomiting, of *Bleeding*, *Scarification*, *Leeches*, *Nat-
ural* and *Artificial Baths*, as also of cooling, drying
Medicines, and those that temper the acrimony of
the Blood, *Lotions* and *Unctions* are here very profi-
table; an Example of each I here give, A

A Purging Decoction.

Take Roots of Asparagus, Grass, Polypody, of each six drams ; Liquoras, three drams ; Leaves of Fumitory, Succory, of each an handful ; Senna, an ounce and half ; Rhubarb, half an ounce ; Tamarinds, an ounce ; Aniseeds, two drams ; Cream of Tartar, three drams ; let them infuse 24 hours in a sufficient quantity of Whey, then boil them, and to a pint and half of the strained Liquor, add Syrup *Dianicum*, three ounces : Make it into an Apozeme. Dose, three ounces.

A Vomit.

Take *Oxyfaccharum Vomitivum*, Syrup of Roses solutive with Senna, of each an ounce ; Fumitory-water, as much as is sufficient : Make it a draught.

A Sudorifick.

Take Flower of Brimstone, Antimony, Diaphoretick, Salt of Holy-Thistle, *Sal Prunella*, of each a dram : Make it into a Powder, to be divided into six equal Doses.

A Bath.

Take Roots of red Docks, Briony, of each six ounces ; Leaves of Fumitory, six handfuls ; Camomile Flowers, three handfuls ; Bran, a pound ; Brimstone, two ounces ; Nitre, an ounce ; Alom, an ounce and half ; common Salt, two ounces ; Mix them.

In a grievous and rebellious Scab, the Powder
of

of *Snakes* is excellent; this is the preparation of it; Take a Snake (in *March*, if possible, before it hath laid its Eggs). the Head and Tail being cut off, and the Skin stript off, all the inward Bowels (except Tongue, Heart and Liver) thrown away, let it dry in an Oven moderately warm, to a Powder: The Dose from four grains to fifteen.

Vipers dried after the same manner, excel *Snakes*, and are commended in the Leprosie it self.

A Fomentation.

Take Burnt-Talk, an ounce and half; quick-Lime, two ounces; Litharge of Gold, half an ounce; Bole-armenick, an ounce; dry Tobacco-Leaves, three ounces; White-wine, a pint; clear Water, a quart: Let them boil a little, and keep the strained Liquor for use.

A Liniment.

Take Crude Brimstone, two drams; Venice-Sope, a dram and half; prepared Nitre, half a dram; Litharge of Gold, two drams; *Mercurius dulcis*, a dram and an half; White Camphorated Ointment, an ounce; Oyl of *Rhodium*, eight drops: Make it into an Ointment.

CHAP. XIII.

Of the Fat, Nails and Hair.

IT hath been long disputed, whether the Fat, Hair and Nails ought to be accounted Parts of the Body, or Excrements. I neither think them Excrements, nor Parts properly so call'd.

Not Excrements, for they are Bodies, enjoying with the rest Life and Nourishment, but not nourishing others, and are of singular use for the publick good.

They are not Parts properly so call'd, being destitute of any certain bounds, and have no particular operation: Fat nourisheth in Famine; the Hair and Nails, without injury to the whole, may be cut off.

Adeps, or Fat, is a similar, soft, white, insensible part, made to preserve the Natural Heat, to help Chylification, to facilitate Motion, to moisten the Parts, and to nourish the Body in Famine.

Hair is a similar Part, produced by the worst part of the Blood, covering some Parts, and in some manner adorning them.

'Tis outwardly *four square*, inwardly *hollow*, the variety of Colour it owes to the Temperament and Age of Men, to the Constitution of the Air or Countrey,

The Nail is a similar part, sprung also from the impurest part of the Blood, flexible, hard, defending the Fingers from external injuries, as also adorning them, Its Root is joyned to a Ligament

ment, and is very sensible by reason of the neighbouring Tendons.

Chirurgical Consideration.

1. Blood wholly, or in part destitute of Fat, is not much to be commended; for its abundance constitutes fleshy, its unctiousness, fat Bodies, as where but little fat, lean; this fatness of the Blood dispersed into the parts of the Body, changeth into natural Fat more copiously in the cold parts, to wit, in the lower Belly; Breast, &c. than in the hot. These Signs may confirm our Opinion, as often as they are required from the Blood after the opening of a Vein; for the upper part of the Blood, which is erroneously taken by many, to be the Phlegm of the Body, and so the vitious part, oftentimes is the very best of it: This may be distinguished by the fire; for if it be fat, it will flame; if Phlegm, it useth to crackle; hence it comes to pass, that the Fat, when it is any obstruction in the cure of an external Disease, may be cut off without any pain, or other inconvenience.

2. The Nails are oftentimes subject to clefts, to be rough, and of ill colour; the Cause is a vicious Humor, or some External Accident; these may be cured by the often paring of the superfluities, and the applying the following Plaister.

Take Rosin, half an ounce; Turpentine, Frankincense, Mastick, of each two drams; Goats-Suet, Green-Wax, of each five drams: Make it into a Plaister according to Art.

Blood sometimes remains coagulated under the Nails, which may be discussed by this Plaister.

Take Roots of Crow-foot, of Solomons Seal, red Mirrhe, of each a dram; Gum Sagapenum,

an ounce ; Oyl of Nuts, a dram : Make it into a Plaster.

For the *falling* off of the Nails, a *Finger-stall* may be prepared of Green Wax, *Ladanum* and *Ammoniacum*, &c.

3. The *shedding of the Hair* is a frequent evil ; the causes of it, are *Burning Fevers*, *old Head-aches*, *the Leprosie*, and *the French Pox* ; and there is not to be expected any new in its room, before the Cause for some time hath been taken away ; which being done, the following external applications may be made use of.

Take Southernwood, Maiden-hair, Mallows ; Marjoram, of each one handful ; Cummin, roots of Parsley, of Raddishes, Storax Calamit, and liquid, red Mirhe, of each five drams ; *Euphorbium*, *Cantharides*, of each a dram ; Gum *Ladanum*, three ounces ; Oyl of white Lillies, an ounce ; Roman Nettle-seeds, half an ounce ; infuse them 36 hours in three quarts of fair Water, then distil them in *Balneo Mariae*.

Or,

Take Aloes, a dram ; Agarick, Coloquintida, of each two drams ; Rockel-seeds, half an ounce ; Salt of Camomile, two scruples : infuse them twenty four hours in fifteen ounces of White-Wine, and keep the strained Liquor for your use.

CHAP. XIV.

Of the Generation of the Blood, and its Circulation.

WE have hitherto treated of the Similar Parts, properly and improperly so call'd ; from whom are the Dissimilars compounded. The Blood serves to their Conservation, as doth the Spirits to the Actions from thence proceeding ; but how the Blood is generated in our Body, and how many Spirits are there found, is not as yet sufficiently understood by us. In this thing Writers differ among themselves, so that the very Truth seems to lie hid in the profoundest darkness ; yet the love and desire of searching out the Truth exactly, gives me freedom to declare my Opinion, yet still giving place to a better.

Sanguification I conceive to be performed after this manner ; The harder Meat received in by the Mouth, chewed by the Teeth, and by the *Spittle* moistened, is in some manner prepared to be made Chyle.

This *Spittle*, from whence it hath its beginning, no man as I know of, hath rightly demonstrated : Those that derived it from the Veins and Arteries, it is upon this reason, because they communicate several Branches to the Maxillary Glandules, through which the late invented *Ductus Salivales* pass ; and moreover, a Salivation raised by Art, seems to confirm this Opinion.

But how the Arteries and Nerves can separate
so

so great a quantity of *Spittle*, as we have often known to have been thrown forth in so short a time, seems not possible to me, I do rather derive it from the *Stomach* and *Lymphaducts*, which I suppose to adhere to the *Salivals*, upon the following Reasons.

1. As often as voluntary swallowing is designed, we observe the *Spittle* to ascend as it were from the *Stomach* into the *Mouth* it self, especially if the *Meat* be moistened by *Drink*.

2. The *Tongue*, *Mouth* and the whole *Stomach* have inwardly a common *Tunicle*.

3. The *Meat* in the *Mouth*, as in like manner in the *Ventricle*, ought to be mixt with *Spittle*.

4. It would be very troublesome continually to drink in eating; for it is very easie for some time to keep the devoured *Liquor* in the *Stomach*, and then sensibly to communicate some part of it to the *Mouth*.

5. The *Lymphaducts* are dispersed through the whole *Body*, and they go both unto the *Stomach* and *Tongue*.

6. I judge no *Humor* to be thrown out of our *Body*, except by peculiar passages; and so for several reasons, I think the *Tears* also to be shed through particular *Channels*, which a more accurate hand (whether mine or others) may sometimes find out: Yea, the most Noble *Lewis Bils*, the great *Anatomist*, attests to have already discovered them, and promiseth to demonstrate them in the *Body*, and in *Figures* to the Favourers of *Truth*.

If you enquire of me of what nature *Spittle* is, I answer, that it is *Salt*; yet 'tis not alwayes necessary that this saltness be perceived by the *Tongue*, which those that understand the nature
of

of Artificial Salts, sufficiently know: It is certain that there is some natural Salt in all Meats and Drinks; 'tis also certain, that Salt not only helps the commixing and concoction of the Meat, but also contributes much to the fermentation of the Humors.

The *Ductus Salivales*, which we have now made mention of, have but one strong *Tunicle*, not unlike the Ureters, but that they are lesser.

Of each side one.

They take their *Original*, endued with many Roots, from a certain great Glandule, lying under the Tendon of the *Musculus Digastricus*, not far from the upper part of the Jaw, then they run under the Tongue, above the great Nerve of our eighth pair, to the more inward parts of the mouth, where, in the two ranine Glandules near the bridle of the Tongue, they terminate; from whom being variously perforated, issues out the Spittle into the Mouth; of which, the enquiring Reader may more largely satisfy his curiosity out of the writings of *Glisson* and *Van-Horn*.

The Meat thus chewed by the Teeth, and prepared by the Mouth, through the *Gullet*, by the assistance of proper Muscles, is carried into the *Stomach*, which that it may the better keep it, it presently purseth it self together, so that the *upper O-rifice* is close shut, but the *lower* not so straight, that though very lightly pressed, may there find passage.

The Meat received by the Stomach, and moistened by Spittle, Drink, and its own humidity, forthwith by the heat of the Stomach, begins to be concocted; the *Order* is not observed here, which was in the eating of the Meat; yet in the beginning

ning I have observed the Meat to be disposed in the same order; as it was devoured by the Animal that was dissected; but afterwards the Stomach continually digesting, first sends away that Meat which is of easiest Digestion, to the Guts, and it doth not detain it, whilst the other is also concocted, which Loosnesses and Vomiting evidently enough declare, if you look into the Excrements.

The Meat being concocted, assumes a whiteness like to Cream, and this is called *Chile*.

The *Chile* out of the *stomach* through the *Pylorus* enters the *Intestines*, in which passage there is a notable Peristaltick motion: Out of this the *Vena Lactæa* suck what is useful to nourish the parts; and the unuseful is cast out through the Belly: The *Vena Lactæa* consist of one very thin Tunicle, but are endowed with several Valves, extended from the Liver towards the Glandules, they are distributed through all the Mesentery, and so are carried for the most part to the small Guts, especially the *Jejunum*; but yet the great Guts are not altogether destitute of them, that none of the Nutriment may be lost.

From the Intestine, both these Vessels and the *Chile* contained in them, go to the three *Glandules* of the *Chile*, the greatest of which is in the middle of the Mesentery, called by *Asellius*, *Pancreas*; the two lesser are call'd the *Lumbar Glandules*, situate near the left Kidney.

Each of these Glandules send forth a branch, which joyning above the left Kidney, constitutes a Vessel call'd *Vena Lactæa*, about the bigness of a great quill.

This great *Lactean Vein* lying between the *Arte-*
S ria

ria aorta, and the *Vertebra's* of the Loins, cover'd with Fat, runs upwards, and above the Heart, ascends by the Gullet, and so hastens to the *left Subclavial Vein*, where it ends in one, two or three branches; here a most thin valve occurs at the very end of the Vein looking inwardly, that the Chyle might not return back again, or run further into the Arm; out of this Subclavial they descend by the *ascending Trunk of Vena Cava* into the *right Ventricle of the Heart*, that there by the help of the heat, and natural quality, it may be changed into Blood.

Being converted into Blood, it passeth by the *Pulmoniack Artery* to the Lungs, which are by part of it nourished, and the rest of it goes through the *Pulmoniack Vein* to the left Ventricle of the Heart, that it may be more perfectly elaborated; thence by the great Artery is carried to all the parts of the Body, communicating to them nourishment for the preservation of Life.

These wayes of Conveyance is displeasing to some, who would rather retain that by the *Meseraick* veins known, and so greatly cried up by the Ancients, than admit of a new Truth, therefore they say that the Chyle, together with the Blood, may by this way be most conveniently carryed to the Liver, seeing that the Venal Blood is carried not from the Liver to the Guts (which was the false Opinion of the Ancients) but from the Guts to the Liver, and so not here to be allowed a contrary motion of each Liquor, already sufficiently known.

But in truth these Opinions they defend, rather by a probable ratiocination, out of their old affection to the Liver, than that they can make it out by natural or demonstrative Arguments, or answer these Queries following.

1. What

1. What is the use of the Lacteal Veins?
2. Why is their rise in the Guts?
3. Why the *Valves* are so placed, that they may hinder the regrefs of the *Chile* into the Guts.
4. Why do they all go together with the *Chile* to the *Glandule* of the *Chile*, and none of them to the *Liver*?
5. Why are the great Lacteal Veins joyned together?
6. For what end doth the *Chile* pass into the Subclavial Veins? All which can be made appear in the Body to the sight.

That part of the *Blood* which is not altogether useless, yet not fit for *Nutrition*, passeth out of the *Arteries*, ever joyned together by *Inosculation*s, with the *Veins* into the *Vena Cava* and *Porta*, and so by their means is brought again into the *Liver* and *Heart*, that it may be amended, and again concocted.

I do not only say that the *Blood* is carried by the *Vena Cava* into the *Heart*, but also by the *Vena Porta* into the *Liver*, which I prove by these Reasons.

1. The *Liver* is the biggest of all the *Viscera*; not that I would infer its pre-eminence from its greatness (see *Chap. 2.*) but I suppose Nature would never have created so great a Body, but for the performing of some extraordinary operation.

2. Its greatest *Vein*, coming out with a large *Orifice*, forthwith goes to and enters the *Heart*. What necessity is there for the *Vena Cava* to be distributed with such numerous *Branches* through the *Liver*, and so presently to ascend into the *Heart*; for indeed it ought to convey back the *Blood* not

amended. Its Trunk likewise, and that of the *Arteria Aorta* might ascend directly up the Body to the Heart without concerning it self with the Liver, especially when the *Vena Porta*, near the Liver, may also yield sufficient wayes for freeing all the Blood from Choler: It ought to receive the Blood concocted in the Liver, and convey the same to the Heart.

3. *Its colour is red.* I well know that it is sometimes observed to be white, pallid, yellow, green; but this colour is to be ascribed to the Disease, not to its natural Constitution; for in all Bodies perfectly sound, it is found red.

What wonder is it, that the Liver being red, in weakness should contract a whiteness; doth not a red face grow pale, when the Body is affected with sickness? How easily likewise that the Liver separating the Choler, should be died with a yellow or green colour? 'Tis also observed in the first xx or xxx dayes after conception, it is naturally white, neither becomes red before the maternal Blood (concerning which, some of the Moderns have far otherwise ascribed) comes to the nourishment of the already formed parts, which is the same in all *Spermatick parts*, even in the Heart it self: but will you conclude from hence, that this red colour only happens to the Liver, and is not more proper to it, than it is to the Muscles, which yet therefore do not make Blood? To this I answer, that the affluent Blood is so necessary here, and so appropriated to the Liver, that without it it cannot be called a perfect Liver; but both the colour, substance and number of Vessels are so different in a Muscle, and in the Liver, that in no wise the parts deserve to be said to be like one another; and what absur-

absurdity is it; to say that a *Muscle sanguifies*, when even the Heart it self by the principal Anatomists and Philosophers, is acknowledged a Muscle.

4. *The Maternal Blood comes first up the Umbilical Vein to the Liver, ere it goes to the Heart of the Infant:* And the Valves and Ligatures evidently demonstrate, that the Arterial Blood is carried by the Umbilick Arteries from the Child to the Womb, but the Venal by the Umbilick Vein from the Womb to the Child; but whether the Infant is nourished by the Maternal Blood, or by an External Humor, like as a Chicken in the Egg, is to me all one; when 'tis evident, the Blood, which either coming from the Mother or Infant, passeth first to the Liver, before it enters the Heart.

5. *The Choler is separated from the Blood in the Liver;* for every one knows that there can no separation be made without there be first a Concoction.

From all these Arguments I cannot gather any thing, but that the returning Blood is carried by the *Vena Porta* to the Liver, that it may there be purified, and in some manner concocted, in which its operation, that the Blood may be rendred more perfect, 'tis carried to the Heart, especially when by reason of its continual and necessary pulsation, the Blood cannot remain long in the Heart: and for this reason I judge the whole Blood must needs be moved about with a circular motion.

The Blood made in the Liver, as is declared but now in the eighth Chapter, enters the *Vena Cava*, and from thence into the Heart.

And thus the Royal Liver, at the same time, when Kings are taken away, may yet use a limited power, and may remain with honour in its own Kingdom.

But what shall we do with the Melancholick Spleen, which makes many laugh? It hath many accusers, and not fewer excusers.

1. It was never accounted by *Hippocrates* the Learned *Greek*, a receptacle of the Excrements; or is it any where to be found in him, that he call'd the Spleen another Liver.

2. The great number of Veins and Arteries, and so by consequence the abundance of Vital Spirits, do not permit the Excrements to be collected here.

3. It hath not any convenient Cavity, wherein the Melancholy, Fæculent Juice can be received.

4. And if you imagine that there is no necessity here of a Cavity, its Parenchima is too thick, and not porous enough, therefore unfit for the reception of so thick a Humor; which also is never naturally found in it.

5. It is too great a Bowel to perform so vile an Office.

6. In dead men, where Melancholiness hath been the cause of their death, upon the examination of the Internal parts, there none of them less recede from its natural state than the Spleen, the Heart only excepted, whom the Vital Spirits do so greatly defend, that it is less affected than other parts, which seldom happen to the Intestines, Kidneys, Gall and Bladder.

What is therefore its Use? It elaborates the Acid Humor, which is very necessary, but not Excre-

Excrementitious, and mingles it as a Ferment with the Blood, by which it becomes more perfect, and fitter for Circulation.

In my judgment the Salt of the Blood affords matter to this Humor, which it greatly requires that it may not be corrupted; but this Salt which proceeds from the Meat and drink, is never so pure, but that it hath need to be brought to a more perfect state in our Body. But this is my Opinion.

The Supreme of the Kings is the Heart; to this are two others subject, the Liver and Spleen (I beseech you give me leave to make use of this Similitude in favour of the Ancients) the Heart makes the Blood, the *Liver* repeats the Concoction, and separates the Choler; the *Spleen* from its own Salt, by an innate vigor produceth an Acid Humor, which as a Ferment by the Venal Spleenick Branch, it mixeth with the Blood, to render it the perfecter, and the more fit for Circulation; if any Excrementitious part should be there separated, it is all by the Cæliack Artery, and the Hæmorrhoidal Vessels sent to the Guts.

If it appears to any one to be a contradictory, that by Salt a Humor should be made Acid, we advise that person to taste some Spirit of Salt.

About sixteen years since, the great Anatomist *Franciscus Sylvius* put forth some particular things concerning the use of the *Spleen*; he was of opinion, that the Blood was not made in the *Ventricles* of the Heart, neither that it was carried from the Heart by the Arteries to all the parts of the Body, for nourishment sake alone, but that it likewise underwent some other Mutation in the rest of the *Viscera's*, particularly that the

Spleen further concocts the Arterial Blood, and brings it to a higher degree, yea that it more then perfects it, so that the Blood in a manner in this place assumes the nature of Ferment, by whose meanes in a short time, a great quantity of Mass may become acid, in the same manner he affirms that the Blood more and more concocted in the Spleen there receives strength, by which it restores the returned and weakened Blood, and preparing together with it the Chile, that it may the sooner be turned into Blood: The Reasons which he produceth for it, are these:

1. The Spleen receives a much greater quantity of Blood from the Heart, than is necessary for its nourishment.

2. That it can be returned back again to the Heart by no other way than by the Branches of the *Vena Cava* and *Porta*; for what hath hitherto been delivered of the short Vessel, are to be accounted but ridiculous Fictions, as may most evidently be made appear in dissected Bodies.

3. Seeing this Blood is continually mixed with the returned Blood and Chile in its passage to the Heart, it ought not to be an Excrement; for so the Noble Parts, and the whole Body would not be purged; but the more injured.

4. Chymistry hath long since taught us, that such mutations happen daily in Nature.

The Remaining part of the Blood unuseful to the Body, therefore Excrements, is thrown out through the *Guts, Ureters, and Parts of the Skin, &c.* concerning which it is not necessary to add more here; but now we are forced to describe those new watry passages, which the studi-

ous in Anatomy have long and diligently inquired into- The *watery passages*, the *Lymphatick Vessels* have their rise both from the *Liver*, and from the *Joints*, and receive the liquid Juice from the Arteries with which they correspond.

Those which come from the *Liver*, embrace the *Vena Porta*, and so pass to the *Miseraick Glandules* of the *Chile*, as doth those also that ascend from the *Feet*, thence they discharge their *Water* into the great *Lacteal Vein*, which as we have already declared, carries the *Chile* to the *Heart*.

Those which proceed from the *Arm*, both lie above and under the *Veins*, until they come to the *Subclavial Vein*, which they enter about the same Place, where the great *Lacteal Vein* doth, being furnished with a particular valve just at their entrance, and so altogether they carry the *Water* to the *Heart*.

This *Water* is Sweet, not being as *Urine* is, Salt.

These *Vessels* consist of a very thin *Tunicle*, whence they are soon broke.

Use of them in my opinion, is to take the superfluous *Water* from the *Arteries*, and carry it to the *Glandules* of the *Chile*, and *Lacteal Vein*, by which the *Chile* being made more *Liquid*, may the more conveniently be conveyed through the narrower passages, thence to return the same to the *Arterial Blood*, making it fitting to serve to the nutrition of the moist parts, and to the cooling and moistening of the hot.

But that it may the more clearly appear, in what manner I conceive, how what hath already been said, is performed in our *Body*; observe that the *Meat* is converted in the *Stomach* into *Chile*,

to which part of the Drink is mingled, this mixture is carried through the Glandules of the Chiles and the great Lacteal Vein into the Heart, where it is changed into Blood, which is by means of the Arteries to be conveyed through the whole Body; every part of this Blood nourisheth those parts which are of the like temperament with it self; the Hot part of it nourisheth the Hot; the Dry, the Dry; the Moist, the Moist, &c. that which is here not well concocted, must be brought back again to be perfected. Why we say that the Veins are not sufficient, and the passages not commodious enough to perform the same, whose Office we know is to bring back to the Heart the Blood not sufficiently concocted; the Reason is, that the Water alwayes remaining in the Vessels, rendered the Blood too thin, so deprived it of its natural consistence and strength.

From all those so clearly and distinctly laid down, it sufficiently appears what the CIRCULATION OF THE BLOOD is, to wit, *a continual motion of the Blood out of the Arteries into the Vena Cava and Porta to the Liver and Heart, that in them it may be fitted for the Nutrition and the life of the whole Body.*

Out of the subtilest part of the Blood are the SPIRITS produced, which are two-fold :

1. *Vital*, which begotten in the Heart, carry life to the parts of the Body.
2. *Animal*, who out of the Vitals Elaborated in the Brain, impart Sense and Motion to the Body.

The Natural at the same time that the Circulation of the Blood was found out, vanished.

Chirurgical Considerations.

1. The *Ductus Salivales*, when the string of the Tongue is to be cut, or the Ranine Vein to be opened, or any other Disease of the Tongue that is to be cured by Manual Operation, warn you to have great care of those little Glandules in which they end, that they might not be hurt with the Launcet, lest there follow a continual spitting.

The great Glandule also of the Neck, from whence these Ductus's take their rise, when it is inflamed, admits not of the use of Mercury; for from hence a dangerous Salivation may very easily be raised.

2. The *Lacteal Veins*, either the greater or the lesser, are oftentimes from a Contusion or Wound so grievously hurt, that they cannot carry the Chyle to the Heart; and though the wound be cured with great diligence, care, and speed, yet the Patient will fall into a Consumption, whence follows Death inevitably: This Truth will defend Chirurgions from many Calumnies.

In Children, and older People, is often perceived an induration and inflammation of the Abdomen; the cause of which is the hardness of the Meseraick Glandules, which allow not passage for the Chyle to the great Lacteal Vein, except the very thinnest of it, whence the flesh of the Muscles wastes, the Body becomes heavy, and weary, and at length a Fever, and a wasting of the whole Body. This evil I use to remedy without any great trouble, with this External Liniment

Take compound Oyntment of Marshmallows,
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Ointment of Sow-bread, of Martiaton, of each two drams; Oyl of white Lillies, of Camomile, of each three drams: Mix it into an Ointment.

Inwardly the following Troches are excellent, being continually used the whole time of the Cure.

Take prepared Steel, prepared Crabs-Eyes, of each a scruple; Vitriolated Tartar, half a dram; *Sal Prunella*, xvj grains; *Species Aromatici Rosati*, a scruple; white Sugar, two ounces: Make them into Troches according to Art.

In this case *Purging* is not to be used, but with *Cassia*, Cream of Tartar, and Laxative Syrups; for the *Glandules* will not bear strong Purges.

3. The Blood taken out upon the opening a Vein, oftentimes after some few hours space, appears very dry, and destitute of all *Serum*, which for the most part is ascribed to its too great Heat and Aduſtion: but this Argument is very invalid; for if the same day, the same, or another Vein be again opened, there will be found a great quantity of *Serum* in the Blood; therefore the true cause is to be deduced from the Circulation of the Blood, but especially in the *Lymphatick Vessels*, which at that time draws the *Serum* and *Humidity*, and so leaves the Blood dry.

It very often also happens that the Body becomes *Tumid*, *Turgid* and *Languid*, upon which the fearful Physician forthwith pronounces nought but danger.

When with the use of Internal and External *Sudorificks*, the Patient in a short time may be cured: The Cause of this Disease is not from the intemperature and debility of those parts the Ancients call'd Noble; for it may easily be distinguished from the *Dropsie*, which these parts occasion;
for

for although the sick persons are very dull and weary, yet are they not anxious, but breath free, and the Belly swells not much. In the Face, and Joynts especially, is a watry matter collected; but if the swell'd parts are compressed by the Finger, we perceive much less *Serum* to be contained in the parts, than in a true *Dropfle*; from whence those that understand not the true Cause, are wont to ascribe this inflammation to wind; But the *Lymphatick Vessels* when compressed, broke, or by any other way obstructed, so that the natural motion of the *Lympha* is hindred, occasions this evil.

4. *The Circulation of the Blood* requires all *venomous* and *depraved* Humors, which are thrown out either by Nature it self, or that outwardly happen to the Body, at the very first instant, forthwith to be expelled out of the Glandules and the Skin, by the means of attractive Medicines, lest that the whole Blood in a very short time be infected, and the Heart it self oppressed, and suffer under it: The which doth sufficiently declare how dangerous it is to open a Vein, and to purge in a Venereal and Pestilential *Bubo*, nay, in all venomous Wounds; as on the contrary, how necessary it is to cast forth the offending matter; by the use of Sudorifick and Attracting Medicines: As moreover how that the invention of the Circulation of the Blood is of very great use in the Art of Physick.

CHAP. XV.

The Division of the Body.

MAns Body is most conveniently divided into the *Venters*, or *Regions*, and *Joynts*.

There are three *Venters*.

1. The *Head*, or the supream Region or Cavity, to it is joyned the *Neck*, which is its prop.
 2. The *Thorax*, *Breast*, or middle Region.
 3. The *Abdomen*, lower *Belly*, or lower Region.
- The *Joynts* are the two *Arms*, and the two *Legs*.

Chirurgical Considerations.

We divide the Body after this manner, that it may be known what place each part of the Body ought to keep; to those that read the following, every thing will become more manifest.

But there is so great *consent* of all the parts, so great concord, that no part may be by it self considered, without a consideration of the whole; therefore I think it necessary, that in a few words the foundation of this mutual consent be here declared.

1. In every part is required a *natural temper*; for the Liver being too hot, the Stomach too cold, the Brain too dry, &c. the whole Body must be out of order.

2. A *sufficient number*; for in the Hand, if the least Bone, Tendon or Artery, &c. be wanting, forthwith its operation is injured.

3. A *just magnitude*; one Foot greater than the other, causeth a troublesome walking.

4. A

4. *A natural Figure, Softness, Thickness; yea, colour it self.*

5. *A convenient connection and sight.*

6. *The presence of the Vital Spirits, which are brought to the Part by the Arteries.*

7. *The presence of the Animal Spirits, which are carried by the Nerves.*

8. *Outwardly the Skin, that covers the whole Body; Inwardly, the Dura Mater, the covering of the Brain, Palate, Tongue, Jaws, Breast and lower Belly, requires also a particular consideration.*

9. *It is likewise necessary that the Nutriment be well concocted, naturally carried and received, that there may no defect be observed in the Parts.*

The End of the first Book of the third Part.

The



The SECOND BOOK.

Of the HEAD.

CHAP. I.

Of the Outward Parts of the Head.



He Head, as Supream Lord, both of its own, and of a thousand other Bodies, not only governs it self, but others well, when formed with a healthy Constitution, and instructed with the knowledge of its own Office; but they live a miserable life, whose Head is not justly and with Art composed, and who neither enquire into, or know its Substance or Figure.

Its *Figure* is Oval, the upper part is call'd *Vertex*, the Fore-part *Frons*, the hinder part *Occiput*, the sides *Temples*, the rest is call'd the *Face*, and consists of the following parts.

First appears the *Skin*, in several places endowed with Hair, but in all with a Scarf-skin.

Under this lies the *Membrana Carnosa* and *Pericranium*, which takes its rise from the *Dura Mater*;

Mater; and passing through the Sutures of the Skull, first invests the Skull, then all the other Bones.

Anatomists that are very curious, make the *Pericranium* to be double; the outward retains the old name of *Pericranium*, the inward is called *Periostium*.

The Bones which lie under these *Membranes*, first we divide into the Skull and Jaws, then into many other Bones.

The Skull is composed of eight Bones, joyned together by proper and common *Sutures*.

The proper Sutures are true or spurious.

The true are three.

1. The *Coronal*. 2. The *Sagittal*. 3. The *Lambdoidal*.

The spurious are the two *squamous Sutures* of the temporal Bones.

The common are three likewise.

1. The *Frontal*. 2. The *Sphenoidal*. 3. The *Ethmoidal*.

The Bones themselves which have many perforations and cavities for the passage of the Air, of the Veins, Arteries and Nerves, are eight.

1. The Bone of the Forehead, alwayes in Children, sometimes in old people, is divided just to the root of the Nose by the sagittal Suture.

2, 3. The Bones of the fore-part of the Head, or *Bregma*.

4, 5. Temporal Bones, or *Petrosa*.

6. The *Lambdoidal*, or Bone of the hinder-part of the Head.

7. The *Sphenoidal*, or Wedge-like Bone.

8. The *Ethmoidal* Bone, or *Cribriform*.

The Muscles of the Forehead are the two *Attoid*

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lentes;

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lentes; Muscles of the *hinder part* of the *Head*, are the two *Deprimentes*.

The *Jaws* consist of several Bones conjoyned so by harmony, that in old people they appear but but as one; the one is called the upper, the other the lower Jaw.

The upper Jaw is composed of eleven Bones, of each side five, the odd eleventh is placed in the middle.

1, 2. *Os Zygomaticum*, or yoke-bone makes the lower part of the *Orbite* of the *Eye*, constituting with its *Apophisis* the *Os jugale*, or *Zygoma*.

3, 4. *Os Lachrymale* makes the internal corner of the *Eye*, having a large *Orifice* descending to the *Nose*.

5, 6. *Os Maxillare*, or Jaw-bone, particularly so called, which is the greatest of all the Bones, which constitutes the *Jaws*.

7, 8. *Os Nasi*, or Bone of the *Nose*, which in its end hath five united *Cartilages*.

9, 10. *Os Palati*, or Bone of the *Palat*.

11. *Vomer*, A peculiar Bone above the *Palate*, which supporting the interstice of the *Nose*, and joyned to it by *Harmony*.

The upper Jaw moves not but when the whole Head moves, therefore needs not proper Muscles.

The lower Jaw (which generally remains divided in the fore-part till the eighth year, and afterwards is so closely joyned together, as it appears to be but one Bone) hath two *Processes*, and in them a *Cavity*, big enough to allow a convenient situation to the *Veins*, *Arteries*, and *Nerves*, from whence the *Teeth* receive their *Nutrimment* and *Sense*: The *Branches* of the *Nerves* about the *Chin*, pass out again through a little *Orifice*, are distri-

distributed into the Muscles of the Lips.

It is moved by six pair of Muscles, which are,

1. *Pterygoideus Internus.* } *Attollentes.*

2. *Digastricus,*

3. *Latus, Deprimens.*

4. *Pterygoideus Externus*, bringing them forward.

5. *Masseter.*

6. *Musculus Temporalis.*

This Muscle hath this peculiar to it self, that it is covered by the *Pericranium*, by which the adjacent temporal Bones are altogether destitute of it, which is not observ'd in any other part of the Body. But no Man hitherto as I know of hath yet given the Reason of it; for whatsoever hath been delivered by others concerning this, hath been so slight, that they give little satisfaction to the lovers of Truth. But of late, *Joh Mekerem* an Experienced Chirurgion of this City, hath in an Epistle communicated something particular relating to this matter, the substance whereof I here give you, until he put forth his Observations (some of which I have seen.)

T O

Dr. PAUL BARBETTE

Physitian at *Amsterdam.*

SIR,

I Will truly declare to you my Opinion concerning the Question I informed you I had moved in the company of some Physicians, which was, Why the Bones

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which

which lie under the temporal Muscles, are not covered and invested by the Pericranium, as are the other Bones.

On the 6th of January 1654, being commanded by the Honourable Senate of this City, to open the Head of PETER JACOBS, Bricklayer, then was my Opinion, which I had been hitherto big withal, sufficiently confirmed; for as soon as I had observed a great depression in the upper part of the Skull, I also found a great quantity of coagulated Blood, which had part of it past through the Ears, and part of it remained yet in the Cavity of the Ear; then being very desirous to know the way by which this Blood had descended into the Cavity of the Ear; which, when I had diligently enquired into, I also discovered the reason and cause wherefore the Pericranium covers in this place the temporal Muscles, and not the Bone under them.

First, The Opinion and the Answer (which the Honourable and Experienced Dr. TULPH Burgo-master of Amsterdam, had given to the propounded Question, to wit from whence this Blood should come, which very often in Wounds of the Head flows out of the Ears?) I found to be true and reasonable; for I perceived, as the Noble Consul had affirmed to me, that the Blood from the upper part of the Head, did descend between the Skull and Pericranium, and so did enter the space that is between the Os Parietale and Petrosus, and from thence to be as it was strained through a Sieve into the Cavity of the Ear; afterwards in searching further, I found the Os Petrosus to be removed a great distance from the Os Parietale; so that in the place where the Bones did recede from each other, was a motion observed, beginning at the Os Petrosus, and ending in the Os Parietal,

rietales, there where the Toothy union in the Os Jugale in the inward part, which is covered with a Callus (as it ought to be in every Articulation) to hinder bruising, is observed.

And this being so, it may be concluded, that the Pericranium, if it had invested the Bone under the temporal Muscles, without all doubt it would have passed it self between the Os Petrosum, whence from its moving and rubbing in eating, speaking, or any other motion, would have always felt intolerable pain. Thus have you, Sir, what I thought (hoping to proceed further) the reason to the Question propounded, &c.

Farewel.

This Opinion is indeed judicious, and very probable; for in dead mens Skuls, the upper Bone of the Temple is movable as is the lower; and in the Suture of the Zygomatick Bone, is a Cartilage found, which is necessary in every Joynt. For I confess the motion is little, but greater would not be required than what sufficeth to afford passage to the thick Humors, either from External or from Internal Causes, collected sometimes in the Cavity of the Ear, by the which the Brain and Ears may be freed from many and various inconveniences: I hope time and diligence will give us greater light in this thing.

Each Jaw is armed with necessary weapons, which are called *Teeth*.

In men, for the most part thirty two, in Women, twenty eight.

Four are called *Fore-teeth*, or *Cutters*.

Two, *Dog*, or *Eye-Teeth*.

All the rest are called *Jaw-Teeth*, or *Grinders*.

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After the 30th, 40th, 80th year, oftentimes comes forth with pain, two Teeth in the very furthest part of the Jaw, which some call the *Teeth of Manners* or *Wisdom*, others the late Teeth.

Before we come to the other Muscles of the Head, we deem it necessary to describe some parts which are not as yet mentioned, that is, the Eye, Ear, Nose, Mouth.

The Eye with the Lids, to wit, the Membranous coverings before Cartilaginous and Hairy, defend from External Injuries; hath two Corners or Angles.

In each Corner is a Glandule; that which is in the lesser External Corner, is great, white, hard; that in the greater External Corner, is lesser, soft, red, and covers the *Punctum Lachrymale*.

Four Tunics contain the three Humors.

One of them, which comes from the *Pericranium* is likewise common to the Lids, and is call'd *Conjunctiva* or *Adnata*.

The other three are proper, and are thus reckoned.

1. *Cornea*, coming from the *Dura Meninx*.
2. *Uvea*, from the *Pia Mater*; this sometimes dilating it self, then again contracting it self, constitutes the *Pupil*, shewing the many-coloured Oval Circle, call'd the *Iris*.
3. *Retina*, from the Brain it self, or rather from the Optick Nerve; which proceeding further, is changed into the *Aranæa*.

To these three may be added a fourth, *Vitreæ*, which is illy omitted by many.

The Humors of the Eyes are,

1. The *Aqueous*. 2. The *Chrystalline*. 3. The *Vitreous*.

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The second pair of Nerves, or the *Optick Nerve* brings the Spirits for sight; the third pair, or the *Motorious*, for Motion.

Branches of the *Internal* and *External Carotide-Artery* bring to it the Nutritious Blood; and the superfluous is returned by the *Internal* and *External Jugular Veins*.

Fat and Muscles make up the rest of the Eye.

The *Fat* serving to the Calefaction, Humectation and better motion, is here in great quantity, every where distributed between the Vessels and the Muscles.

The Eye-lid hath four Muscles.

One *straight* Muscle, three *orbicular*.

The *Eye* it self hath six, of which four are *straight*.

1. *Attollens*, or *proud*.
2. *Deprimens*, or the *humble*.
3. *Adducens*, or the *Drinking* or *Reading* Muscle.
4. *Abducens*, or *disdainful* Muscle.

Two oblique, which are call'd the *Lovers* Muscles; of these,

1. *Obliquus Externus*, or *Troclearis*, because it passeth through a Pully.
2. *Obliquus Internus*.

The *outward Ear*, or the *Cartilaginous Auricle*, is joyn'd to the Bone of the Temples.

It hath a very sensible *Membrane*, and behind it also some *Glandules*, to which the Head sends the superfluous humors.

Vessels, it receives from the *External* and *Internal Jugular* and *Carotide*.

Nerves, from the second pare of the *Nerves* of the Neck, as also from the six pare of the *Nerves* of the Brain.

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Here is but little *Fat*; what little there is, is below the *Lap*; it receives four *Muscles*, of which, the three former are to it common with other parts, the fourth proper to it self.

1. *Antrorsum ducens*, which moveth it forward.
2. *Retrorsum ducens*, which pulleth it backward.
3. *Quadratus, deorsum trahens*, pulling it down.
4. *Tripartitus*, lifting it up.

The inward part of the *Ear* hath four Cavities for sound; and for defence and strength, as many Bones.

The Cavities are,

1. *Meatus Auditorius*, whose extremity a little and strong Membrane covers, which is call'd the *Tympanum*, and Membrane of the Drum.
2. *Tympanum*. 3. *Labyrinthus*. 4. *Cochlea*.

The little Bones are of the same bigness in Children, as in older people; which are,

1. *Malleolus*, or the Hammer.
2. *Incus*, or the Anvil.
3. *Stapes*, or the Stirrop.
6. *Os Orbiculare*, or the Orbicular Bones.

The Noble *Lewis de Bils*, the great Anatomist, in a particular Treatise, shews, that the *Os Petrosus* (which hitherto by reason of its great thickness and solidness, was a vast hinderance to those that had a desire to view these Bones of the Hearing in their natural situation) not to consist of one only Bone, but to be made up of four, joyned together by Harmony, which may very easily be separated by Art.

Within are two Muscles, the one joyned to the *Meatus auditorius*, the other to the *Malleolus*.

The

The *Nose* covered with a Scarf-skin, Skin, Muscles, and the *Periostium*, hath two Cavities separated by a Cartilaginous *Septum*; each of these again is divided into *that* which ascends to the *Os Ethmoides*; and into *that* which descends above the Palat, into the further part of the Mouth.

The sides of it are called *Pinna*, *Ale*, or wings; the lower fleshy part is called *Columna*, or the fleshy Pillar,

In the inside they are invested with a thin *Membrane*, which is very sensible, arising from the *Dura Mater*, which is as to the Nose, likewise common to the Mouth, Palat, Tongue, Larinx, Gullet, and to the Stomach it self.

The *Bones* of which it is compounded, are many and spongy, replete with *Caruncles*, that the Snot might not voluntarily distil forth.

Arteries from the Carotide, bring nourishment to it; *Veins* from the Jugular, return the Blood that is not perfectly concocted. *Nerves* from the first pare, according to our order, serve for the smelling, as do those from the fifth pare, serve to the feeling.

It hath no *Fat*, Its *Bones* we have already given you; its *Muscles* are six.

- 1, 2. *Deprimentes*, depressing the Nose.
- 3, 4. *Dilatantes*, or dilating the Nostrils.
- 5, 6. *Constringentes*, or pulling the Nostrils together.

In great Noses there are likewise two other Muscles, which we call'd *Aperientes*, which open the Nostrils.

The *Mouth*, the Gate of Air, Speech and Nourishment, hath two *Lips*, the parts of each side,

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side, call'd *Cheeks*, as that below is call'd the *Chin*.

The Lips have two *Muscles* common to the *Jaw*.

1. *Quadratus*, or drawing backward. In some this motion is performed by the *Zygomatic*.

2. *Buccinator*.

The upper Lip hath two *Muscles* proper to it self.

1. *Sursum Trahens*, or drawing it upwards.

2. *Deorsum Movens*, or moving it downwards.

The under Lip hath but one, *Deorsum trahens*, or drawing it downward.

Common to both the Lips, are

1. *Obliquè sursum trahens*, or drawing them obliquely upwards.

2. *Obliquè deorsum trahens*, or drawing them obliquely downwards.

3. *Sphincter Oris*, *Constrictor*, or *Orbicularis* which purseth the Mouth together: The inward, parts of the Mouth, are the *Teeth*, the *Gums*, *Palat*, *Uvula*, *Tongue* and *Os hyodis*.

Of the *Teeth* we have treated.

The *Gums* offer nothing worthy a particular consideration.

The *Palat* consists of a sensible Membrane common to the Stomach, which hath its rise from the *Dura Mater*.

The *Uvula* is a long little Body, it hath two Ligaments, and as many Muscles, but very little.

The *Tongue* (as a Sword cutting out Honour either well or ill, as it is moved by pure or impure Spirits) behind, is fastned to the Larinx, *Os Hyodis*, to the Jaws, and to the Tonsils; before, to a certain Membranous and strong Body, whose extremity makes the *String* of the *Tongue*.

Of

Of both sides the String lies a Glandule call'd *Ranina*, from the neighbouring Vessels.

It hath two *Veins* call'd *Ranina*, from the Jugulars; two *Arteries* from the temporal; two great *Nerves* from the seventh pair, as also many little ones from the fourth and fifth,

It is destitute of *Fat*.

Its Muscles are,

1. *Genioglossus*, which brings the Tongue forward.
2. *Styloglossus*, which draws it upwards.
3. *Myloglossus*, which draws it obliquely upward.
4. *Basiglossus*, which draws it directly inward.
5. *Ceratoglossus*, pulling it downwards.

Os Hyoidis, by the assistance of Muscles and Ligaments, is tied to the sharp process of the temporal Bones, and to the Buckler-like Cartilage of the Larynx; it is composed of five united Bones; the middlemost of these, which is the greatest, call'd the *Basis* of the Tongue, hath two Cartilaginous Productions, which often degenerate into Bones.

It hath four Muscles on each side.

1. *Geniohyoides*, raising it directly upwards.
2. *Sternohyoides*, moving it directly downwards.
3. *Styloceratohyoides*, obliquely bringing it upwards.
4. *Coracohyoides*, obliquely drawing it downwards.

All these are the outward parts of the Head, which is either solely moved by its own proper Muscles, or together with them likewise with the Muscles of the Neck; these shall be treated of hereafter. The proper Muscles are,

1. *Flectens*,

1. *Flectens*, or the nodding Muscle.
2. *Splenius*, or the Muscle that shakes the Head.
3. *Complexus*, the associate of the *Splenius*.
- 4, 5. *Obliqui*, drawing the Head obliquely backwards.
- 6, 7. *Recti*, drawing the Head straight backwards.

Chirurgical Considerations.

Very many, as well Internal, as External Diseases, take their rise from the Head, which is not improperly compared to a House-roof that receives the vapours of the whole House; which afterwards being changed into a Catharr distils upon the inferiour parts creating a *Pain*, and *Palsie* in the Joynts; an *inflammation* in the Eyes and Jawes, &c. a shortness of breathing in the Breast, and in the Stomach a *depraved Chylification*; in the Guts a *looseness*, &c. some of the External Diseases shall here be considered by us, the Internal belong to the consideration of the Physician.

1. There is often in the Head *Perago*, *Achor*, or *Favus*, which is a crufted Scab, happening as well in old as young people; these Scurffs are oftentimes very thick, sometimes accompanied with moisture, which causeth great itching and a very ill smell.

The *Cause* is salt Phlegm; it is for the most part a stubborn Disease, and very easily returning again.

The *Cure*.] In this case are generally used, strong Purging, Bleeding, Sweating, Salivation Unctions, pulling out of the Hairs: But without using any

any of these Remedies, I have often cured this Disease, only with this Decoction.

Take Ashes, (which are call'd by the *Dutch Weidasch* in *English*, Pot-ashes,) with White-Wine, make a *Lixivium* of a moderate Acrimony, in a quart of which, boil the Leaves of Marjarom, Southernwood. of each two handfuls; of Maiden-hair, a handful and half; Rose-leaves three pugils: Make a Fomentation.

With this let the head be washed twice. or thrice a week warm then dry it well with hot Linning Clothes, and in a few weeks space, the Patient with thus doing, will be cured: You may likewise sometimes use gentle Purging Medicines.

2. In a *Hydrocephalus*, and great *Cathars*, an Issue with great success may be made in the Nape of the Neck, because the Cavity's of the *Dura Mater* are thereabouts joyned to the Jugular Veins; especially in Children, in whom very often the Sutures do too much gape.

3. *Fat things* hurt the Head, because it is not covered with many Muscles.

4. In the Skull sometimes a tough matter is collected in several places, which if not removed by those Medicines that purge Phlegm, and outward discussives, in process of time acquire a very great hardness, which still increasing, grow into a perfect Horn, not to be cured, but by Chirurgery.

5. Upon the Skull likewise comes other' abscesses, which although they may belong to a *Steatoma*, *Atheroma*, or *Melicerides*, yet in the Head especially they are call'd *Testudo*, *Talpa*, *Natta*. These give little hope of Cure, where the Bone is much corrupted;

rupted; otherwise they may be taken away by a Threed, or what is better, by a Knife, when they reject other Remedies. The manner of taking them away by a Knife, is this; the Skin being divided in form of a Cross, the Bladder is to be taken out, then the *Pericranium* being separated, the *Cranium* is to be scraped with a *Raspatory*, till you come to the sound part, then sprinkle upon it some Astringent powder, and let the skin forthwith be consolidated again; which if it be too loose, a little part of it may be taken away, which is very seldom necessary to be done, when it may be closed enough in the time of the Cure.

6. If the *Sutures* of the Skull are too open, they bring a weakness upon the Brain; if they are too straightly united, they cause the pain of the Head. Experienced Chirurgions affirm, that it is as safe to use the Trapan in the very *Sutures* themselves, as any other part of the Head.

7. The *Muscles* of the Head occasioning nothing differing from other Muscles, except upon a Wound, or Contusion of the temporal Muscle, a Convulsion easily follows; neither ought it to be transversly divided, lest there happen a distortion of the Mouth.

8. The *Teeth*, seeing they neither are furnished with Membranes, nor Nerves, are altogether insensible; but they which attribute the pain to those Membranes which cover the *Alveolus*, it ought to be ascribed to many Nerves that are distributed through them; yet the Causes in this Case are various, and must be well distinguished, to wit, 1. a hot Distemperature, 2. a cold distemperature, 3. a sharp humor, 4. a solution of continuity.

In a *hot distemper*, Bleeding, and Purging is very necessary; apply Cupping glasses to the Neck and Shoulders; let the Head be Purged with Errhins: In the beginning, this Water being held in the Mouth, profits much.

Take the Roots of Tormentil, an ounce; Leaves of Vervain, a handful and an half; Flowers of Bilautians, two pugils; Cipress-Nuts, two drams; red Saunders, three drams; Scales of Iron, one dram; Vitriol, two scruples; Rose-Vinegar, two ounces: Let them boil in a sufficient quantity of Red-wine, to a pint and half, keep it for your use.

The Flux being stayed, we discuss the remaining with the following Decoction.

Take the Roots of Bistort, three drams; of Flowerdeluce, two drams; Leaves of Sage, Hysope, of Each half a handful, Galls, a dram; Frankincense, Sandarach, of Each two drams; Juniper-Berries, an ounce: Boil them in Red Wine.

In a *cold Distemperature*, the Patient must avoid all cold potable Medicaments, yea the very Air it self, those Medicines that purge Phlegm profit, Bleeding hurt. The following Medicine which is of great vertue may be held in the Mouth.

My Spirit for the Tooth-ach.

Take shavings of *Guaiacum*, four ounces; Seeds of Stavesacre, Pomgranate-rinds, Galls, White-Frankincense, of each an ounce; Crude *Opium*, red flowers of Poppy, Camphore, White-Ginger, Cloves, Long-Pepper, of each half an ounce,
Leaves

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Leaves of Sage, Arsmart, Tobacco, Horse-mint, of each one handful ; Roots of Henbane, Pellitory of Spain, Mandrake, Hounds-tongue, Nettles the less, of each an ounce and half : Let them infuse fourteen dayes in a sufficient quantity of Spirit of Wine, then distil it in *Balneo Mariae*.

A *Sharp Humor* falling upon the *Teeth*, is cured almost in the same manner as a hot distemperatnre ; but if those Remedies are not sufficient, the following Mixture is to be used in a Spoon, which is not only of great virtue in this, but in all the other kinds of tooth ach.

Take water of Plantane, an ounce and half ; of Roses, Mint, of each an ounce ; Alexipharmick-water, half an ounce ; Cinamon-water, two drams ; Julep of Roses , or Syrup of Red Poppies , an ounce ; *Laudanum Opiatum*, three grains. Mix them.

In *solution of continuity*, and *rottenness* of the *Teeth*, it is best to pull them out.

In the *Breeding* of *Teeth* in Children, the pain may be mitigated with fresh-Butter and Virgins-Honey, or with a Decoction of the Brains of a Hare or Coney in Ale ; but in a long pain it is very convenient to cut the Gum, to give passage to the Tooth.

9. From the Blood and mixt Humors ariseth the *Ophthalmia*, sometimes true, sometimes spurious, sometimes seizing on one Tunicle of the Eye, sometimes on more ; that which happens only in the great corner of the Eye, is call'd *Agylops* ; the white of the Eye may be vexed with little B'adders called *Phlyctena*, which being broke, there follows an Ulceration, except stayed, corrupting the whole Eye.

But

But if this Ulcer seizeth only the Caruncle, and that the *Punctum Lachrymale* afterwards grows callous, it becomes a *Fistula Lachrymalis*. If these Diseases yield not to these Remedies proposed in our Chirurgery, others are to be made use of: *Phlegetena* are soon removed by the following Powder.

Take white Sugar-Candy, prepared Tutty, of each half an ounce; red Coral prepared, Camphore, white Vitriol. *Saccharum Saturni*, of each two scruples: Mix them, and make them into a Powder.

A beginning Ulcer of the Eye requires first mundifying, afterwards consolidating Medicines.

A Mundifying Medicine.

Take Mirrhe, 15 grains; Aloes, six grains; Sugar-Candy, one dram; the yolk of one Egg, Goats-Milk, three ounces: Mix them.

A Consolidating Medicament.

Take red Coral prepared, burnt Harts-horn, Sarcocol, of each a scruple; Dragons-Blood, half a scruple; burnt Lead, a scruple; Starch, half a dram; *Crocus Metallorum*, half a scruple; Gum Tragaganth dissolved in Rose-water, a dram; Horse-tail-water, as much as sufficeth to make it into a Collyrium.

If the *Punctum Lachrymale*, in the great Glandule of the Eye be callous, and from the continual Flux of Humors, degenerates into a *Fistula*, first, the Callosity is to be removed, before the other accidents will cease, for which the following are used by us; the *Pblegm* and Spirit of Vitriol, burnt

Alom, blew *Vitriol*, *Verdigreece*, *Mercury water*, *Aqua Fortis*, *Unguentum Egyptiacum*; but the best of all is *Unguentum Fuscum* of *Felix Wurtz*, boil'd to the consistence of a Suppository, and put into the *Fistula*.

The *Callosity* being taken away, the *Ulcer* may be cured by the following Medicine.

Take *Roots of Flower-de-luce*, round *Birchwort*, *Bark of Frankincense*, of each a dram and half; *Mirrhe*, *Mastick*, *Sarcocols*, *Aloes*, *Cadmia Fossilis*, of each a dram; *Honey*, as much as is sufficient to make it into an Ointment.

If the *Os Lachrymale*, or *Zygomaticum* be foul, the *Skin* being divided, an actual or potential *Cautery* must be applied, that the *Caries* may be removed, otherwise it is impossible to cure the *Fistula*, that not taken away.

10. The pain of the *Ears* proceeds from a cold or hot distemperature, or from a solution of continuity, which oftentimes an *Ulcer* follows; for a cold distemperature, and what accompanies it, the *Wind*, besides the common and particular Medicines, outwardly may be applied this with very good success.

Take *Oyl of Rue*, *Henbane*, of each half a dram; of distilled *Marjoram*, half a scruple; *Castor*, six grains; *Eastern-Saffron*, four grains: Mix them.

The *Smoke* of *Tobacco* blown through the boll of a *Pipe* put into the *Ear*, hath done good to many for the pain of the *Ears*, and for deafness, oftentimes also a decoction of *Cloves* in *Red Wine*, hath profited, if two or three drops of it be instill'd warm into the *Ear*, and the *Ear* afterwards be stop't with one of the boil'd *Cloves*.

Two drops of the following Spirit, Morning and Evening dropt into the Ear, is excellent.

My Spirit for the Ears.

Take Ants-Eggs, N^o 100, Castor, Palp of Coliquintida, Marjoram, Savin, Wormwood, Rue, a handful; Seeds of Cummin, Anise, Fennel, Carawayes, of each three drams; Bay-berry-husks pull'd off, Juniper-berries, of each half an ounce; Pomegranate-rinds, six drams; Roots of black Hellebore, round Cyprus, Raddishes, Sow-bread, of each an ounce; middle-siz'd Onions, N^o vij. bitter Almonds, two ounces: Infuse them 14 dayes in a sufficient quantity of rectified Spirit of Wine, then distil them in *Balneo Mariae*.

In a *hot distemperature*, first we ought to divert the Flux of humors by Bleeding, Purging, Scarifications, Glisters, &c. then the following Medicines by Cotton imbibed, we may put into the Ear.

Take womans-Milk, two ounces; Whites of Eggs well beaten, half an ounce; Oriental Saffron, half a scruple; Goose-grease dissolved, two drams; *Crude Opium*, five grains: Mix them.

Or,

Take Oyl of Violets, sweet Almonds, Rose-Vinegar, of each an ounce; *Philonium Romanum*, two drams; Eastern Saffron, half a scruple: boil them, and strain them for your use.

Or,

Take Roots of Marsh-mallows, an ounce; leaves of Mallows, of Mandrake, of each one handful;

ll 2

Heads

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Heads of Poppy, N^o ij. flowers of Dill, Camomile, of each two handfuls; Linseeds, three drams; boil them in Cows-Milk for a Fomentation.

The Flux and pain being ceased, what yet remains, may be discussed by those Remedies but now set down in a pain from a cold distemperature.

Where the Inflammation *apostumates*, which we understand by a Feverish Pulse, and by the continual increasing, we must assist Nature by suppurating Medicines.

Take *Unguentum Basilicon*, two drams; Oyl of Linseed, three drams: Mix them.

Or,

Take Goose-grease, Oyl of sweet Almonds, of white Lillies, of each two drams: Mix them.

Q,

Take Roots of White Lillies, an ounce and half; a large Onion roasted in in the Embers, and beaten together; add to them the Meal of Marshmallows, half an ounce; Linseed. six drams; fresh-Butter, an ounce and half; Oyl of Camomile, and Linseed, of each half an ounce; Saffron, half a dram; Make it into a Poulrice.

The Apostume being broke, the Ulcer is first to be mundified; for which purpose are convenient Honey of Roses, of Centaury, the juice of Smal-lage, Fennel, Bete, Onions, Leeks, Decoction of Agarick, Lupins, Urine, Lye, Oxes-gall, *Unguentum Egyptiacum*.

Then must be used those Medicines that may dry and consolidate the Ulcer.

Take Roots of round Birthwort, half a dram; of Flowerdeluce, a scruple; washed Ceruse, prepared

pared Tutty, of each a dram ; Mirrhe, Sarcocols, Litharge of Gold, of each two scruples ; artificial Cinabar, half a dram ; Scales of Iron, a scruple ; Honey of Roses, as much as is sufficient : Make it into an Ointment.

Where Worms come in an Ulcer from an impure matter, the following are convenient to kill them.

The juice of Wormwood, Centaury, Arsmart, a decoction of Coloquintida, of white Hellebore, Ox-Gall, Oyl of Wormwood, of bitter Almonds,
Or,

Take Aloes, Mirrhe, of each two drams ; Coloquintida, half a dram ; tops of Wormwood, half a handful : Boil them in white Wine for an injection.

II. The *Nose* as well as the *Ear* is subject to inflammation, which presently in the beginning we are forced to remedy by the Medicaments formerly mentioned in an inflammation, lest otherwise its Cartilages shoud become carious, which may cause a great deformity.

Sometimes a *Tumor* call'd a *Polypus*, seizeth the inward Cavity of it, occasioned from impure and pituitous Blood ; which is twofold : for it either resembles a Tent or Peller, and is call'd by the general name *Sarcoma*, or it spreads it self with many small branches into the inward parts of the Mouth, or into the external parts of the Nose, and is in *specie* call'd a *Polypus* ; that which is of a whitish colour, not painful and soft, is easily cured, but that more difficultly, which is very red ; never that which is livid, black or stinking ; being touched, it turns into a Cancer, and overspreads the whole Face.

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The Cure of it is performed by Medicaments by a Thred, or by a Knife; in the beginning these Medicines that are dry and astringent are most convenient.

Take Pomegranate-rinds, flowers of Balauſtians, of each a dram; *Cadmia Fossilis*, two drams; Crude Antimony, *Crocus Martis*, of each half a dram; Mastick, Mirrhe, Loadstone, Litharge, of each a dram; Make them into fine Powder.

These effecting nothing, Excedents are to be used.

Take burnt Alom, Bole-Armenick, Balauſtians, of each three drams: Make them into a Powder.

Another stronger.

Take Vitriol, half an ounce; Alom, Pomegranate-rinds, Galls, of each two drams; red Mirrhe, burnt Birthwort, of each a dram: Make them into a Powder.

Another yet stronger.

Take Vitriol, four ounces; Alom, Verdigreece, of each half an ounce; Vinegar, six ounces: Calcine them in a luted Vessel.

Another, very effectnal.

Take red and yellow Arsnick, Alom, Galls, of each half an ounce: Make them into fine Powder.

I have seen those Tumors totally eradicated by the water wherein Mercury sublimate is boiled.

But they seldom are cured by Medicine; for the most part we use here an Instrument described by *Sennertus* and *Aguapendens*.

It may also be drawn forth with a pair of Forceps;

ceps; they may also be removed by a thred (if it can be conveniently put about it) what remains may be cured by application of the Medicines but now mentioned.

12. The *Mouth* is inflamed upon many Causes; the chief are, 1. The heat of the Blood. 2. The acrimony and saltness of the Spittle. 3. A Rheum from the Head; generally there follows little Blisters, and an *Ulceration*, which not being carefully looked after, turns to a *Gangrene*, especially in Children after the small Pox and Measles; in this case, besides the common Means, this is excellent.

Take *Felix Wurtz* his brown Ointment, two drams; Honey of Roses, an ounce and half; Spirit of Vitriol, half a scruple: Mix them.

13. Under the Tongue happens a *Rannula* or *Batrachios*, a Tumor which is more frequently produced from Phlegm, than from any other part of the Blood; and it is often cured by this Powder.

Take Pepper, Ginger, of each a dram; *Sal Gemma*, and common Salt, of each two scruples; wild Marjoram, Calamint, Orrise-roots, Hermodactils, of each half a dram; Mastick, a scruple: Make it into a Powder.

Strew it often upon the Tumor, which if it goes not away, open it in one or more places, that the moisture may come forth, and apply Honey of Roses to the Wound; some in this case use an actual Caution, but I rather approve of a Launcet.

14. For the Corruption of the Gums, this Powder is good.

Take Roots of Comfrey, Pomegranate-rinds,

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of each a dram ; Frankincense, Mirrhe, white Vitriol, of each half a dram ; burnt Vitriol, a scruple : Make it into a Powder.

15. *Epulis*; A Tumor of the Gums must be suddenly taken away by a Thred or Knife, lest it should turn into a Cancer.

16. For the taking off an *ulcerated and rotten Uvula*, *Bartholine* hath described an excellent Instrument in his *Anatomical Observations* ; but it may be conveniently enough cut off with a pair of Scissers, and the Bleeding may be stopt with Cyprus Vitriol, *Unguentum Egyptiacum*, or the like, is sufficient to perfect a Cure.. *Fabritius Hildanus* judiciously took it away by the help of a Thred, which is to be imitated by them who fear an Incision.

CHAP. II.

Of the Internal Parts of the Head.

NOW we approach *Pallas's Tower*, which is sometimes empty, and sometimes fill'd with Folly ; wherein, if an *ill mind*, be, as it were, a familiar Inhabitant, *Virtue* must prudently look to it self ; but yet let it continue its Dominion, whilst its Enemy in the mean time lurking in some corner, shall no where be at quiet.

Before we can enter into it, and look into the Brain, there are two Curtains to be drawn open, the *Pia* and *Dura Mater*.

The *Dura Mater* in the outside rougher than in the inside, encompasseth the Brain very loosely, lest its

its Arbitrary Motion should be hindred, dividing the same by the help of certain foldings, which is call'd *Falx*, into the right and left part, and also separating it from the *Cerebellum*. In this *Falx* are alwayes found four Cavities, sometimes seven; in which many of the branches of the *Carotide-Arteries* are inserted, afterwards joyning with the *Jugular Veins*.

These Cavities have the use and substance of *Veins*, so that they may not improperly be reckoned among the *Veins*.

The *Pia Mater* is more sensible, and hath more *Arteries* than the *Dura*, which doth not only invest the whole Brains, but also enters the winding every where; which, for this cause may more easily be separated.

We do divide the Brain into three parts, which are, 1. The *Brain it self*. 2. The *Spinal Marrow*. 3. The *Cerebellum*, or little Brain.

The *Brain* is of an *Ashy* colour, and of a softer substance than *Marrow* (which is both whiter and folider) whence also it was wont to be call'd *Rind*; it receives severall Branches from the *Carotide-Artery*, and is destitute both of *Nerves* and *Sense*.

It hath divers *turnings* and *windings*, which fold in deeply, especially those in the fore-part of the Head, where the *great Fissure* divides the Brain outwardly, even to the *Marrow*.

The *Marrow* is the Mother of all *Nerves*; within the Skull 'tis call'd the *Marrow of the Brain*; but without it is termed the *Spinal Marrow*.

The *Cerebellum*, or little Brain is more of an *Ash-colour* than *White*, receives *Arteries* from the *Cervicalis* and *Carotide*; yet there are fewer Branches here than in the Brain, as being much less.

It

It hath no windings, but is made up as it were of several thin plates lying one upon another.

These being thus considered, the Anatomist takes off some part of the Brain with a Knife, and forthwith the *Corpus Callosum*, and the *Fornix* joyning to it, come in view.

Under these laterally lie two great *Ventricles*, in figure resembling a Horse-hoof, which the *Septum Lucidum* distinguisheth into the *right* and *left*, or into the *first* and *second*.

In them is contained the *Rete Mirabile*, or *Plexus Choroides*, consisting of many little Glandules, composed from the branches of the temporal Artery, twisted together in form of a Net.

In the fore-part these Ventricles are united, and make a third.

In this third Ventricle are two Cavities; the first of them runs to the *Infundibulum*, and to the *Glandula Pituitaria*, the other to the fourth Ventricle contained in the *Cerebellum*; above this Ventricle are observed four round Bodies, which are call'd *Testes* and *Nates*, to which joynes the *Glandula Pinealis*, which is falsely call'd by some the seat of the Soul: Of late the famous *Sylvius* hath demonstrated it not to reside in the Ventricles, but without them; by whom also it is esteemed but a Glandule: and that with more reason, because that both he and I have found in it not seldom two or three Stones, but sometimes four, which we yet keep by us.

The Bodies being removed, eight pair of Nerves appear, which we have already treated of; on the fore-part of whom joynes the *Rete Mirabile* of *Galen*, which is a complication of the Cervical and Carotide-Arteries.

After

After these, the *Cerebellum* comes in view, like a double Globe, in the midst of which is the *Processus vermiciformis*, and *Pons Varolii*, under it lies the fourth Ventricle.

Last of all, the *Spinal Marrow* shews it self, divided in its beginning into two parts, not unlike a Writing-Pen, which descending down the Back, imparts its branches over the whole Body.

Chirurgical Consideration.

1. In Wounds of the *Dura Mater*, two Symptoms render their Cure very troublesome, to wit, a Flux of Blood and extream pain; if the Skull be not sufficiently open, without any delay the Trepan is to be applied on the Part affected, and forthwith the extravasated and grumous Blood being discharged, let this Ointment be applied.

Take Manna of Frankincense, two drams; Aloes, one dram; Mirrhe, a dram and half; the softest Hares hair, half a scruple; white of an Egg, as much as sufficeth to make it into a Lini-ment.

The Powder is also very useful that is described in the Chapter of particular Wounds in the second Part of this Chirurgery.

To mitigate the pain, Oyl of Roses, Violets and Myrtles used warm, as also the warm Blood of a Hen or Pigeon, &c. is very much commended.

The Flux of Blood and the pain being ceased, the following Medicines are to be used, which are not to be left off, unless the Matter begins to flow too plentifully.

Take Oyl of Turpentine, two ounces; Spirit of Wine, Syrup of Wormwood, of each an ounce: Mix them.

But

But if a Gangrene or putrefaction should happen, the following Liniment is of great use.

Take Sarcocols, Mirrhe, Aloes, of each a dram ; Syrup of Wormwood, Honey of Roses, of each two drams ; *Ung. Egyptiacum*, two drams and an half ; *Aq. vita*, an ounce and half ; White Wine, an ounce : Let them boil gently, then strain them.

Neither do I apprehend any danger is to be feared in the taking off part of this Membrane when putrified ; so that you can come at it with a pair of Scissers, and that the *Sinus* or *Pia Mater* be not hurt.

2. When the *Pia Mater* is likewise affected, the Chirurgeon must abstain from all Oyls, although they be drying, lest a corruption of the soft Brain be caused : Drying Cephalick Powders are very convenient to be used here. But seeing that these Wounds for the most part are Mortal, I shall say no more of them.

CHAP. III.

Of the Neck.

THe Neck under the Scarf-Skin, Skin, and fleshy Membrane, and the common and proper Membrane of the Muscles, hath of each side four *Muscles*.

Of these, the *Longus* and *Scalenus* bend it.

Transversalis and *Spinatus* draw it back of each side.

It hath five *Veins*, *Cervicalis*, *Muscula Superior* and *Inferior*, *Carotis*, *Interna* and *Externa*.

And

And as many *Arteries, Cervicalis, Muscula Superior & Inferior, Carotis Interna & Externa.*

It hath Nerves from the *Par Vagus*, and the Spinal Marrow.

In the fore-part of it, are many *Glandules*, which are greater in Women than in Men.

Under these the *Larinx*, the Organ of the sound lies, composed of five Cartilages, which are,

1. *Thyröides*, or Buckler-like.

2. *Crycoides*, or Annular.

3. *Arytenoides*.

4. *Glottis*.

5. *Epiglottis*.

It is moved by six pair of Muscles, which are,

1. *Hyothyroidæ*, the pair that lift up the *Larinx*.

2. *Bronchii*, the pair that pull it down.

3. *Cricothyroidæ antici*, the pair that dilate.

4. *Cricotheroidæ laterales*, pursing it together.

5. *Thyro-arythenoidæ*, that open it.

6. *Arythenoidæ*, Sphincters that close it.

After these, the *Almonds* or *Paristhmia* (by some call'd *Tonsils*) offer themselves; then the *Pharynx*, to which appertain seven Muscles, by whose assistance the Meat and Drink are swallowed.

1, 2, *Sphenopharyngæi*, which raise up the *Pharynx*.

3, 4. *Cephalopharyngæi*, moving it inward.

5, 6. *Stylopharyngæi*, dilating it.

7. *Constrictor* or *Sphincter*, which closeth the Gullet.

The back-part of the Neck hath seven *Vertebra's*, the processes of some of which are perforated, to give passage to the Vessels that carry the Blood into the Brain.

Chi-

Chirurgical Considerations.

1. We have already sufficiently treated of the Cure of *Scrophulas* or the *Kings Evil*; I will only give you here the Oyl of *Langius*, whose Virtues are very excellent, not only in the *Kings Evil*, but also in malignant and fordid Ulcers, if it be carefully used.

Take Oyl of Philosophers or Brick, half a pound; Frankincense, Mastich, Gum Arabick, Turpentine, of each three dram; pound them together, and distil them in an Alembick, then add to the distillation Salt of Holm-Oak, two drams; and distil it again, and reserve the distillation in a Glass for use.

In the room of the Salt of Holm-Oak, which grows not in *Holland*, *Sal Gemma* may serve in stead of it.

2. In a *Hernia gutturis*, or *Bronchocele*, seldom Medicaments effect any thing, when for the most part the Cause of the Disease (to wit, preternatural Phlegm mixt with Wind) is contained in a peculiar Bladder, and the Tumor lies under the Muscles, having its Original not from the Glandules, but from the *Aspera Arteria*, or Wind-pipe; yet in the beginning, the following do good.

Take Roots of *Ireos*, Galangal, of each a dram and half; Pennyroyal, Savoury, Rupture-wort, of each a dram; Seeds of Fennel, Annise, of each a dram; Parsly-seeds, half a dram; Long-Pepper, Spikenard, Nutmegs, Cinamon, of each two drams; Mirrhe, half a dram; Burnt-Alom, half an ounce; White Sugar, three ounces: Make it into a fine Powder.

Let

Let the Patient take of this Powder each Morning a dram and half in White Wine.

Take Gum *Ammoniacum*, *Galbanum*, *Bdellium*, dissolved in Vinegar, of each an ounce ; powder of Orrise-roots, two drams ; Mustard and Nettle-seeds, of each a dram ; Pulp of *Coloquintida*, Eastern Saffron, of each a scruple ; *Sal Gemma*, Alom, of each a dram ; Naval-Pitch, six drams ; Rosin of the Pine, an ounce : Make it into a Plaster.

These Medicines effecting nothing, after this manner the Tumor may be taken away. First, Take up the Skin, and divide it long-ways, then it being separate of each side to the bottom, from the Tumor. take out the Bladder, whole, if possible ; for if any part of it be left behind, the little Artery which brings nourishment to the Tumor, must be divided, lest it increase anew. Then let the Part affected be washed with Vinegar, wherein a little Salt and Nitre hath been dissolved ; for the Flux of Blood is not in this case at all considerable ; Lastly, Bring the Lips of the Wound together with a stitching Plaster, it being not necessary to use a Needle here.

Of the *Angina* and *luxation* of the *Vertebra's* of the Neck, we have spoken of in their places.

The End of the second Book of the third Part.

The



The *THIRD BOOK.*
Of the *Thorax* or *Breast.*

CHAP. I.

Of the *External Parts* of the *Breast.*



The middle Region of the Body, whose upper part is call'd the *Shoulders*, fore-part the *Breast*, hinder part, the *Back*; under proper and common *Teguments*, hath proper and common *Muscles*.

The common are those of the *Lower Belly* and *Scapula's*; those we have shewn already; these are four.

1. *Serratus Anticus minor*, which brings the *Scapula* forward.
2. *Trapezius*, or *Cucullaris*, which moves it upward, and obliquely backward.
3. *Romboides*, which moves it obliquely downwards.
4. *Levator*.

The proper *Muscles* of the *Thorax* are twelve,

1. *Subclavius* or *Extensor*.
2. *Serratus Anticus major*, or the inferior raiser up the *Ribs*.
3. *Ser-*

3. *Serratus posticus superior*, or the superior raiser up of the Ribs.

4. *Serratus posticus inferior*, or the depressor of the Ribs.

5. *Sacro-lumbus*, which draws the Breast together.

6. *Triangularis*, which likewise draws the Breast together.

Under these Muscles lie the *Breasts*, in both Sexes abounding with quantity of *Fat*, and in the Female with many Glandules.

The *Back* and *Loins* (whose Muscles in this place we are forced to describe) have four pair of Muscles.

1. *Quadratus*, or the flexor of the Vertebra's.

2. *Longissimus*, or first extender of the Vertebra's.

3. *Sacrum*, or the second extender.

4. *Semi-spinatum*, or the raiser up of the Back.

After the Muscles, follow the *Collar-Bones*, the *Shoulder-blades*, the *Breast-bone*, the *Ribs*, and the *Vertebra's*; of the *Veins*, *Arteries* and *Nerves* we have formerly treated.

The *Clavicles*, or *Collar-Bones*, being spungy bones, are joyned to the upper process of the *Shoulder-blade*, by strong *Ligaments* and movable *Cartilages*.

The *Scapula* or *Shoulder-Blade* is a broad and thin Bone, lying upon the outside of the *Ribs*, furnished with two *Ligaments*, three processes, and five appendices.

The *Sternum*, or *Breast Bone* being distinguished in *Infants*, by seven or eight lines, and by three or four in old people, is very spungy, and hath in

its lower part a Cartilage, call'd *Cartilago ensiformis* or *mucronata*.

The Ribs in each Sex are twelve; the seven uppermost, which are the true, are joyned with a double Tubercle to the Vertebra's, but with a Cartilage to the *Sternum*, are hard and round; the five lowermost, which are the Bastard-Ribs, are lesser, softer and shorter, having Cartilages about the *O. Sternum*, but not touching it.

Between these Ribs on each side, are *Muscles* found, which are call'd *Intercostals*, eleven within, and as many without; so that in all there are forty four, the Fibres here are placed cross-wise.

In the Cavity of each Rib, formed in the lower part of it, resides a Vein, Artery and Nerve, which extend themselves into the middle of the foresaid Muscles.

The *Vertebra's* of the *Back* are for the most part accounted twelve, and have nothing considerable.

Chirurgical Considerations.

I omit here divers operations, having already treated largely enough of them before.

What now offers it self, is a *Fistula* of the *Breast*, of a more difficult cure in that, than in any other part, by reason of the continual motion of the Muscles; therefore 'tis highly necessary to distinguish these *Fistula's*; for the oblique do very hardly admit of any Cure: Those that perforate the Breast, are not easily made whole again; those that have their rise from between the *Pleura* and the Muscles, the matter falls down, whence it comes to pass, that afterwards it is difficultly discharged; therefore in this case there necessarily is a
short

Short breathing, and a slower motion of the Breast : The *Callous* is to be removed by the same Remedies we have set down in the Chapter of *Fistula's*, and so sometimes the *Pleura*, and the flesh of the Muscles unite again ; but if these effect nothing, let the Chirurgeon put a little crooked *Silver-pipe* into the *Fistula*, so that the end of it may touch the bottom, through which let him pass a Needle fitted with Silk, answering to the crookedness of the Pipe, which being done, let him with the Needle perforate the Skin, then the Needle being drawn through, let both ends of the Thred be tied together, and the Thred every day be annointed with some *Exedent* Medicines, and the Callosity being taken away, let the Ulcer be *skinned*. The Instruments which are used in this case, are described in *Tab. 38. Figure 5*, of *Scultetus*, of the old Edition.

The Breasts of Women often in those that give suck, from the great quantity of Milk, wax hard and painful, and by the *Dutch* is called *Drop* ; which affect may be cured in one dayes space, with compound Ointment of Marshmallows, the watry matter being suckt out by a Woman or Whelp : but this discharge being neglected or delayed, every day the Breast grows harder and harder, nay, becomes *enflamed* ; then *Bleeding*, *Purging*, *Sweating* is requisite : Outwardly this Cataplasm may be applied.

Take meal of Marshmallows, of Fenugreek, of each an ounce ; Flowers of Elders, Camomile, of each a handful ; red Roses, two pugils ; Crums of course Bread ; an ounce and half : Boil them in Ale, adding to them of Rose-Vinegar, an ounce. Make a Cataplasm.

The Flux of Humors and Pain being ceased, the remaining may be discussed by the following Cataplasm.

Take Meal of Beans, of Linseed and Fenugreek-seed, of each an ounce; Cummin-seed, three drams; boil them in Wine, adding to it compound Ointment of Marshmallows, Oyl of Camomil, of each half an ounce: Make it into a Cataplasm.

When it begins to apostumate, *Maturatives* are to be used.

Take Leaves of Mallows, Marshmallows, of each a handful; Powder of Linseed, an ounce; of Fenugreek-seed, an ounce and half; Leaven, half an ounce; boil them in Milk, adding to them *Unguentum Basilicon*, an ounce; Saffron, a scruple: Make it into a Cataplasm.

The Tumor being suppurated, must be opened with a Caustick; or, what is better, with a Launcet, and put a Tent into it, dipt in common Balsom of Brimstone until the end of the Cure; laying upon the Breast *Emplastrum Diasulphuris Kalandi*.

3. A *Gibbosity* ariseth from the spine of the Back, when the Vertebra's are removed outwardly, or of one side, from their natural place; which is occasioned sometimes by an External Cause, some by an Internal, especially when some pituitous Humor is collected about them; this Humor must be taken away by discussive Oyls and Plaisters, before what is started out, can by a Steel-compress, fitted to the Body of the Patient, be reduced: This reduction is not so much performed by the Compress, as it is by the Emollient quality of the Iron: For this reason, it is necessary that

that the Patient, though cured, for a year or more after, use another Bandage, that the soft Bones may not again start out.

It is here likewise to be observed, that in the middle of the Back, about the seventh Vertebra, with great success may an Issue be made, to intercept Rheums flowing to the Hip, Kidneys, Feet, &c.

CHAP. II.

Of the Internal Parts of the Thorax.

THe *Breast* now comes to be opened, that we may view the Fountain of Life, which the Celestial Truth affirms to consist in the Blood; for what reason is it therefore that the Sovereign Sanguification is not attributed to the Heart, where every where, and by all, it is call'd the Original of Life.

Within, the Breast is invested by the *Pleura*, which is afterward doubled, and at length quadrupled, extending it self from the Vertebra's to the *Sternum*, and then it is called *Mediastinum*, dividing the Lungs and Thorax.

Near to the Throat there adheres to the *Mediastinum*, a Glandulous Body call'd *Thymus*.

The Lungs drawing in the Air, and so cooling the Heart, is furnished to this purpose with a *Trachea*, *Aspera Arteria*, or Wind-pipe; this lies upon the Gullet, and consists of Cartilaginous Rings, and a double Membrane.

The outermost of these Membranes which is

the thinner, ariseth from the *Pleura*; the innermost, which is the thicker, from the *Dura Mater*.

The annulary Cartilages are joyned together with Ligaments, and make not a perfect Circle, as being destitute of a fourth part that lies upon the Gullet.

The Wind-pipe distributes *Branches* through the whole Lungs, which are strong enough, but not at all Cartaliginous.

The *Lungs* themselves covered with a thin, porous *Tunicle*, consist of a soft, red, spongy substance.

In the fore-part they adhere to the *Sternum*; in the back-part to the *Vertebra's*, filling the greatest part of the Breast.

It hath seven lesser *Vessels*, of which we shall speak in their places.

The Heart, the Work-house of the Blood, the Fountain and Origin of Life, as the Sacred Writ it self also witnesseth, is included in a certain Case, call'd by Anatomists, *Pericardium*: It consists of two Membranes, the outermost comes from the *Mediastinum*; the innermost from the Vessels of the Heart; it contains a clear watry Liquor, void of all Acrimony, which we no longer doubt of to be brought from the Ductus's of the Lymph.

The Heart it self consists of a fleshy, serene and hard substance, which is invested with a proper *Tunicle*, furnished with *Fibres* of all sorts, and like a Muscle is continually moved.

It is placed in the middle of the Breast, but the point of it inclines sometimes to the left side.

In Figure it is like to a *Pine-Apple*, having in its

its upper part two Auricles or little Ears, which alwayes beat before the Heart it self.

In old people, the right Auricle is bigger than the left, which in Infants is the contrary; in the throwing forth of the Blood, the Auricles, as well as the Heart it self, are purst together, and dilated as often as they take in the Blood; and this Constriction and Dilation makes the Pulse.

For the concoction, reception and throwing forth of the Blood, it hath two Cavities, and four Vessels.

The Cavities are distinguished by a fleshy Division, in which I could not yet find any way appointed for the motion of the Blood out of the right Ventricle into the left, although many Anatomists do certainly affirm it.

These Cavities are divided into the right and left; the right, which is the greater, receives the *Vena Cava*, and *Arteria pulmonalis*, or *Vena Arteriosa*; the left, which is the least, receives the *Arteria aorta*, or great Artery, and *Vena pulmonalis*, or *Arteria venosa*.

Of these Vessels, as also of the Nerves, and Chylous passages, or the Thoracick lacteal Veins, we have treated of in the first Book.

Under the Wind-pipe in the Cavity of the Breast, lies the *Oesophagus* or Gullet, resting upon the Vertebra's.

About the fifth Vertebra of the Back, it inclines a little to the right side, that it may give way to the *Arteria aorta*, unto the eleventh Vertebra; thence with a straight *Ductus* it passeth the *Diaphragm* into the lower Belly.

It consists of a double Membrane; the outermost is fleshy, having streight and round Fibres, the in-

nermost transverse and oblique : Many add to these a third from the *Peritoneum*, and rightly in my opinion.

The *Diaphragm*, in nature of a Fan, serving to respiration, divides the Thorax from the Abdomen, and adheres to all the Bastard-Ribs, to the Cartilage of the Breast-bone about the Vertebra's, sending two fleshy Processes to the lower parts.

Its edges round about are fleshy, variously movable like a Muscle, but its Center Membranous, and very sensible.

It hath three perforations, 1. In the middle of it, through which the *Vena Cava* passeth. 2. In the left side, through which the Gullet, with the adjacent Nerves. 3. About the Vertebra's, for the passage of the *Arteria aorta*, with the *Vena azygos*.

It receives more Nerves than any other part of the Body from the Collar-Bones to the Feet, which arise not only out of the Brain, from the *Par vagum*, but also from the Spinal Marrow, and from the fifth and sixth Vertebra of the Neck. Of the other Vessels we have already treated.

Chirurgical Considerations.

The *Pleura* is not only subject to Inflammation, upon which follows a Pleurisie, an Empiema, and Impostumation; but also a certain pain, which a salt Humor produceth: This may be distinguished from a Pleurisie, because here is a dry Cough, yet no Fever, also free breathing enough. I have used to remove this by Bleeding and Sweating, and if you fear a Pleurisie, apply outwardly this Plaister.

Take Marrow out of an Oxes-bone, Ducks-grease, of each three ounces; the Muffleage of Marsh,

Marshmallows, Linseed, Fenugreek-seed, of each an ounce; Frankincense, Mastick, of each half an ounce; Oyl of *Nucista* exprest, two drams; yellow Wax, as much as sufficeth to make it into a Plaister.

2. *Mediastinum*, hath not so great a Cavity in Man, as in Dogs and other Creatures; yet it happens sometimes that a purulent matter descends between the two Membranes of it, which can by means be evacuated by the Lungs; therefore we are forced to perforate the *Sternum* with a Trepan, that so through the made Orifice, by the use of Tents, Spunges and other Instruments, the Matter may be discharged.

3. In that kind of *Quinsey*, which we above call *Cynanche*, where the Patient is almost suffocated, we remedy by *Laringotomia*, or opening the Wind-pipe; the Disease it self is far more dangerous than this Operation; therefore it would be well if it was oftner practised; nevertheless there is required a diligent consideration, that the other Parts, to wit, the *Lungs*, *Pleura*, *Gullet*, &c. be not also enflamed, or already full of matter, which may frustrate your labour, and afford cause of scandal; but every thing being well weighed, the Operation is to be performed in this manner; Let the Head be a little bent backwards, that the Wind-pipe may the more plainly appear, and the annulary Cartilages recede the further the one from the other; then divide the Skin according to the length of the *Larinx* unto the hollow, and let a stander-by with his Fingers pluck open the Skin of each side, that the Chirurgion may see the two long Muscles, *Sterni hyoidei*, which he must remove a little asunder

der either with a Knife of Wood or Bone, then the Larinx appearing, he must make his Incision with a Launcet, in the middle between the third and fourth annulary Cartilage, taking great care that he hurt not the Cartilages themselves; upon the Breaths coming forth, take out the Knife, and put a Silver Pipe into the Wound, which must not be so long as to reach the hinder part of the Wind-pipe, lest it cause a continual Cough; the danger of suffocation being over, which for the most part happens to be about the third or fourth day, or at least ought then to be, the Pipe must be taken forth, and the Wound is to be cured in the ordinary manner according to Art, from which it differs not.

4. 'Tis no new thing for *Worms* to generate in the *Pericardium*, which, except kill'd, corrode the very Heart it self. They may be destroyed with a Decoction of *Scordium*, *Wormwood*, *Centaury*, &c. drunk twice or thrice a day.

Concerning the *Wounds* of the *Lungs*, *Heart* and *Diaphragm*, see our *Chirurgery*. A *Wound* of the *Gullet* is cured after the same manner as that of the *Stomach*.

The End of the third Book of the third Part.



The *FOURTH BOOK.*

Of the *Lower Belly.*

CHAP. I.

Of the External Parts of this Belly.



The lower Cavity, properly call'd the *Belly*, is divided into three parts; of which,

1. Is the *Epigastrium*, each side of which is call'd *Hypochondria*.

2. The *Region* of the *Navel*, whose sides are call'd *Ilium*.

3. *Hypogastrium*, the sides of which are the *Groins*.

The lower hairy part is call'd *Pubes*.

The *Abdomen* under common Teguments, hath ten Muscles, of each side five, very necessary for the exclusion of the grosser Excrements contained in the Guts; they are these.

1. *Obliquely descending*, which in the uper part, the *Navel*; in the lower, in Man, the process of the *Peritoneum*; In Woman, the long Ligaments of the Womb perforates,

2. The *Oblique ascending*.

3. The

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3. The *Recti*, or straight.
4. The *Pyramidal*.
5. The *Transverse*.

In the middle of the *Abdomen*, between the two straight Muscles, ariseth the *Linea Alba*, or White-Line, from the meeting of the broad Tendons of the other thin Muscles, which is very sensible.

Of the *Veins*, *Arteries* and *Nerves*, both of the outward and inward parts of the lower Belly, we have already treated of in the first Book; as likewise something of the Bones. But the more curious Examiner meets withal, first, five *Vertebra's* of the *Loins*, which are very full of holes, and greater and thicker than all the rest.

Next to them follows the *Os Sacrum*, which is triangular; in old people being only of one Bone, but in young, consisting of five or six.

To this is joyned the *Os Coccygis*, bent in Women more outward, in Men more inward.

On the sides of the *Os Sacrum* is the *Os Innominatum*, or *Coxæ*, consisting of three Bones joyned together with a Cartilage. Of these,

1. Is the *Os Ilium*, much thicker in Women than in Men.

2. *Os Pudis*, more easily separable in the forepart in Women than in Men.

3. *Os Ischium*, or *Coxæ*, furnished with a large Cavity, which is call'd *Acetabulum* or *Pixis*, appointed to receive the head of the Thigh-Bone.

Chirurgical Consideration.

The outward Division of the Lower Belly, plainly declares what Internal Parts may be affected; In the right *Hypochondrium*, the Liver is situated,

situated, extending it self beyond the Bastard-Ribs two fingers breadth, to the Sword-like Cartilage of the *Sternum*.

In the *middle* lies the *Stomach*, extending it self to the softer parts of this Belly, so that it reacheth four fingers breadth beyond the Bastard-Ribs : Beyond the soft places near the Kidneys lies the *Spleen*.

In the *middle* of the *Umbilical Region*, and about it lies the *Small Gut*, which being wounded, is most dangerous.

In the *right side*, about the Kidney, the *Gut Colon* takes its rise, transversly running between the *Stomach* and *Navel* to the left Kidney, where winding downwards, and becoming narrower, is the frequent receptacle of *Wind*, and whence long pain and great tension, which is undeservedly attributed to the *Spleen* on the other side, the *Intestine* rests upon the *Mesentery*, as doth the *Stomach* upon the *Pancreas*.

In the middle of the *Hypogastrium*, are the *Bladder* and *Womb* placed, and under them the *Intestinum rectum*.

On the *Side* lie the *Spermatick Vessels*, and the *Glandules*, in which both benign and malignant *Buboes* are produced.

But all these Parts cannot be wounded, except the *Peritonaeum* and *Omentum* be first perforated, yet in many men the *Omentum* descends not below the *Navel*; and contrariwise in others, it reacheth to the *Os Pubis* it self.

CHAP. II.

Of the Internal Parts of the Abdomen.

THe first of the Internal Parts is the *Peritoneum*, comprehending all the others, before and behind, above and below.

It is a double Membrane; its rise is rather deduced from the membranous quality of the Soul, than from the Meninges of the Brain.

It is joyned to the Diaphragm, and to the first and third Vertebra of the Loins.

It is thicker in Women from the Navel to the Privy Parts, and therefore stronger, terminating about the *Os pubis*.

In Men it is thicker from the Navel to the Diaphragm, and after it hath received the Spermatick Vessels, as in a Sheath, it sends them through the outer Membrane to the Testicles, where it constitutes their first Coat. Between the foldings of this *Peritoneum*, lie four *Umbilical Vessels*.

1. The *Umbilical Vein*.

2, 3. The two *Umbilical Arteries*.

4. *Urachus*, coming from the Navel, which is nothing else but an indurated knot of the aforesaid Vessels,

In Infants these Vessels are open, in old people altogether closed, and turned into Ligaments: Yet I could never by any means observe in Abortives of six, seven or eight months, the *Urachus* pervious into the Bladder; for neither Probe nor Wind would pass.

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The Umbilical Vein goes to the Liver, the *Ura-
chus* to the Bladder, both the Umbilical Arteries
to the Iliack Branches of the great Artery.

The *Omentum* or *Caul*, keeping the Stomach
and Intestines warm, is very fat and double; yet it
consists of very thin Coats, which are perforated
with many little holes.

It takes its rise from the *Peritoneum*, under which
it also lies, for the most part extending it self as far
as the Gut Colon. and sometimes as far as to the
Os Pubis.

The *Stomach*, the Work-house of the Chyle, is
composed of three *Tunicles*; the outwardmost is
common from the *Peritoneum*; the innermost from
the *Dura Meninx*, the middlemost is proper to it
self; the first is the thickest, the middlemost fleshy,
and the innermost wrinkled.

It hath Fibres of all sorts, inwardly cruisted over
with spongy flesh.

It is situated in the middle of the *Hypogastrium*,
resting upon the Vertebra's of the Loins; its left
Orifice is called *Os*, or *Stomachus*; its right Ori-
fice *Pylorus*.

The *Guts* are joyned to the Stomach, which
convey the Chyle, and expel the Excrements;
they are almost of the same substance with the Sto-
mach, and are all divided very well into the thick
and thin.

The thin Guts are,

1. The *Duodenum*, in which the *Vesica Fellea*,
with the *Ductus Coledochus*, and the new *Ductus*
Pancreaticus are inserted.

2. *Jejunum*, in which are more Lacteal Veins
than in any of the rest.

3. *Ileon*, which is the longest of all.

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The thick Guts are,

1. *Cæcum*, with its worm-like appendix.
2. *Colon*, with two outward Ligaments, and one internal *Valve*.
3. *Rectum*, with the two Muscles, *Ani levatores*, and with one Sphincter all these Guts are joyned together by the help of the Mesentery, and also to the Vertebra's of the Loins.

The *Mesentery* consists of a double strong *Membrane*, with many Glandules between each *Membrane*, which are so very small, that they can scarce be perceived by the Eye; but commonly after a long sickness, three excepted, they shew themselves, and are greater than their natural constitution, long, white and hard.

The greatest of them is seated in the midst of the Mesentery, which being prest, yields Milky juice, sometimes thicker, otherwhile thinner, which is nothing but Chyle, as likewise do the other two, which for the most part are in the left side, under the Emulgent Vein, above the Muscle *Psoas*, not far from the Vertebra's of the Loins.

As these Glandules receive many Lacteal Veins, so each of them again produceth a Branch, which forthwith being joyned together, make the *Thoracic Lacteal Vein*, which ascending, as hath already been declared, carries the Chyle to the Heart.

The *Pancreas* or Sweet bread, lies under the Stomach like a Pillow, joyned to the Gut *Duodenum*, into the which the late invented passage, from the Author, call'd *Ductus Wirsungianus*, penetrates; in this is often Choler found, but never Blood.

The *Spleen*, which perfects the Blood, contains
an

an *Acid humor*, which it sends not to the Stomach by the *Vasa brevia*, but to the Liver by the *Ramus Splenicus*.

It consists of a rare substance, covered with a proper Tunicle, not proceeding from the *Peritoneum*.

It is of a darkish red colour.

It joyns to the bottom of the Stomach by the means of the short vessels, and to the Bastard Ribs, and left Kidney, to the Caul and *Peritoneum*, and to the fleshy part of the Diaphragm, by the assistance of Carnous Fibres.

There is no Bowel abounds with so many *Arteries* as the Spleen, except the Brain.

The *Nerves*, which it receives from our seventh pair, are distributed through its Tunicle, rather than through its Parenchyma.

It is not placed in the fore, but back-part of the left side, near the left Kidney, lying upon the Bastard Ribs and Vertebra's, which is to be well observed.

The *Liver*, the Instrument of Blood, Mother of the great Veins, is situate in the right *Hypocondrium*, and covers a great part of the Stomach.

It is divided (as it were) into two parts, by the Umbilical Vein, which after-birth serves it for a Ligament.

It is a great, thick and hard Body, of a red colour.

It is fastened to the Diaphragm by two Ligaments from the *Peritoneum*, and to the Muscles of the *Abdomen* by the Umbilical Vein.

Some few *Arteries* it receives from *Cœliaca*, and several *Nerves* from the Spinal Marrow, and from our seventh pair.

In the right side of it, underneath, is inserted the *Vesicula Fellea*, or Gall, with the *Porus Biliaris*; the branches of both, together with the branches of the *Vena Porta*, are comprehended in a certain common Bladder, call'd by *Glisson*, *Capsula*; these branches of the *Vesica Fellea* and *Ductus Colydochus*, or *Biliaris*, being detained in the Liver, are dispersed through its whole *Parenchyma*, every where included in the above-named *Capsula*, which is red, about the thickness of an Artery, taking its Original, as it appears, from the *Peritoneum*.

The External Branches being joyned, perforate the Gut *Duodenum*, taking two little Arteries from the *Cœliaca*, and Veins from the *Vena Porta*, call'd *Gemella*, together with the Bladder itself.

The *Kidneys*, which depurate the Blood, consist of a peculiar hard flesh, invested with a proper Tunicle.

Outwardly they are encompassed with Fat, and with a large, loose Coat from the *Peritoneum*.

They lie upon the Muscles of the Loins (yet the left is higher than the right) within the folding of the *Peritoneum*.

And above the *Kidneys* are two hollowed Glands, call'd *Renas succenturiati*, or *Capsula atribiliaria*; these are furnished with Branches from the Emulgent Veins and Arteries, and with Nerves from the *Par vagum*.

The *Kidney* being opened, appear the nine *Caruncula papillares*, through which the *Serum* distils into the *Pelvis*, to be carried through the Ureters into the Bladder.

The

The Ureters or the Urinary passage, whilst within the Kidneys themselves, is very large, but when come from them, is very narrow; it is furnished all along with two Coats, the innermost is proper, the outer common from the *Peritonæum*.

Within the duplicature of the *Peritonæum*, it descends downward upon the Muscles of the Loins to the Bladder, into whose Neck it is inserted; then it ascends upwards between the Membranes, where it perforates the innermost Coat; and through the same hole, together with the Ureter of the other side, enters the Bladder, which is so very little, and so straightly closed, that there needs not here any *Valve* to hinder the return back again of the Urine.

Vesica Urinaria, or Bladder consists likewise of two *Membranes*, the External is thick and fleshy, the innermost not.

It is seated between the Duplicature of the *Peritonæum*, in the Cavity of the *Hypogastrium*, which is commonly call'd *Pelvis*.

In Women it is joyned before by its Neck to the *Vagina uteri*.

The Neck of the Bladder is very fleshy, and by the assistance of the Fibra's, like a Sphincter it opens and closeth the Bladder; in men it is longer, narrower, and more crooked; in Women, shorter, wider, and straighter.

The *Vessels* that bring Blood to the Bladder, are the branches of the *Hypogastrick Vessels*; it receives many *Nerves* from the seventh pare, and from the *Os Sacrum*.

The *Spermatick Vessels* yet remain, which wonderfully vary according to the diversity of the Sex.

In Men the *Spermatick Veins* and *Arteries* first appear, of each side one, which serve for the bringing of the Blood to the Testicles for its preparation.

The right *Spermatick Vein* comes from the descending Trunk of the *Vena Cava*, the left from the left Emulgent, and both the *Arteries* from the great Artery.

These four Vessels being very crooked, and covered by the Ureters, pass to the Testicles: but before they come to them: near, and in the process of the *Peritoneum*, are united by several inosculations, and joyning themselves with the Nerves, make one Body, which is call'd *Pampiniforme*.

The Testicle, or Stones themselves, the Organs of Seed, have each a Muscle, call'd *Cremaster*, they have two common *Tunicles*, and three proper.

The common are,

1. That wrinkled Purse which is call'd the *Scrotum*, to wit, the Skin which is thinner and softer than in other parts.

2. *Dartos*, to wit, the *Carnosa Membrana*, which hath many Vessels.

The proper are,

2. *Elytroides*, arising from the process of the *Peritoneum*.

2. *Erythroides*, from the Muscle *Cremaster*.

3. *Albuginea*, from the *Spermatick* Vessels.

The substance of the Testicles is white, soft, thin, something like to the Glandules.

Upon them with a transverse situation lies the *Corpus vermiforme*, which sensibly becoming narrower, constitutes the *Vas ejaculatorium*, which is *Epididymis*, or *Parastata*.

Vas ejaculatorium, is white and hollow, like to
the

the Ureters, which carries the Seed about the neck of the Bladder into the *Vesicula seminales*, where it is kept till a convenient time.

Proceeding a little further, before, you shall find two great Glandules, in which, an Oily Liquor is contained, to mitigate the acrimony of the Urine, these are call'd *Prostatae*.

At last comes the *Penis* or *Yard*, appointed for the evacuating of the Seed and Urine.

Its Substance is peculiar to it self, the like being not in the whole Body.

It hath no *Scarf-skin*, and is destitute of *Fat*, even in the most fat Bodies.

It is covered with a loose Skin, which is double, and makes the *Preputium*, and covers the *Glans*, to which it is tied by means of the *Frenum* or *Bridle*.

Under the Skin and fleshy Membrane, lie the the Vessels above described.

Near to these are the four Muscles, which are the two *Erectores*, and the two *Ejaculatores*; under the Muscles, are two *Nervous Bodies*, which make the greatest part of the Yard.

By their fungousness, rendring it either stiff or flacid. In the lowest part of the *Penis* appears, The *Urethra*, or passage for the Urine, consisting of two Coats, the innermost is very thin and sensible, the outermost thick and fleshy.

In Women, the Spermatick parts in this, differ from Mens, that they are shorter and less, and by a wreathing and winding approach the Testicles; likewise they communicate several Branches to the Uterine Tubes, and to the Womb it self.

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The softer *Stones* are placed on the sides of the Womb, qualified to elaborate the Seed; they are covered with only one *Coat*, and that is proper.

They have no *Parastats*. The Testicles inwardly are full of little Bladders, which both contain the Seed, and by means of the Tubes convey it to the Womb.

These Tubes joyn to the Womb of each side, and to the Testicles but only of one side.

These have a *Cavity* consisting of a double coat, which also contains some little Bladders, in which many will have the Seed to be further perfected.

The *Womb*, the receptacle both of the Seed and Child, is situate in the middle of the *Hypogastrium*, call'd *Pelvis*, between the straight Gut and the the Bladder.

It hath two strong and thick *Coats*, the first, which comes from the *Peritoneum*, the other is proper, and between both many fleshy Fibres.

It is conveniently divided into the *Fundus* or *Bottom*, the *Orifice* and the *Neck*.

The *Fundus*, the *Globose* part of the Womb, hath four *Ligaments*; the two uppermost are broad and membranous, which are joyned to the *Os Ilium*, the two lowermost are red and round, and pervious to the *Clitoris*, thence like a Goose-foot, destitute altogether of their hollownes, they spread themselves upou the fore-part of the Thigh.

The *Orifice* of the *Womb*, which at one time can very straightly close it self together, yet at another is very dilatable, hath in its lower part a *Tubercle* or knotty substance, as also many little holes.

The *Corvix* or *Neck* of the *Womb*, appointed to

receive the *Penis*, is very much wrinkled within, and almost eight inches long. To the Dissector comes first in view the *Meatus Urinarius*, or the passage for the Urine, which is short & straight, then in this Cavity is the *Clitoris* seated, which is something in softness or hardness resembling to a Mans Yard.

To this joynes the *Hymen*, perforated in the midst for the passage of the Urine and Courses, to which joyn four *Caruncles*, call'd *Myrtiformes*; then follows the *Ala*, *Nympha*, or wings which defend it, and the hairy *Lips*.

Chirurgical Considerations.

1. The Coats of the *Peritoneum* grow very thick in *Hydropick* persons, nay in process of time they acquire a *Cartilaginous* hardness, which is very necessary to be known; in a *Paracentesis* or opening of the *Abdomen*, there oftentimes suddenly follows a watry swelling in the *Cod*.

After a *Paracentesis* made by the formerly described Instrument; the reason of it and the passage are true, that the Water by little and little sinks down above the process of the *Peritoneum*, in the space between the *Peritoneum* and the right Muscles of the *Abdomen*.

2. Sometimes between the foldings of the *Caul* is Wind detained, the cause of long continued pain, which brings along with it fear also of a future abscess. In this case, besides *Sudorificks*, we use discussing Oyls and Plaisters. In the same folding is Water also sometimes included, which promisseth no certain hope of Cure.

Steatoma's and other Abscesses are often gene-

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rated in the *Caul*, by reason of its great quantity of Fat, and its many Glandules, which are very difficultly cured.

3. The Guts, which move themselves variously like to Worms, sometimes they fall inwardly into one another, especially when afflicted with great pain; in this case the Excrements cannot pass to the Fundament: this Malady is call'd *Miserere mei*, or the Iliack Passion; ordinary means effecting nothing, a great Cupping-glass without Scarification, is often to be applied to the Part affected, and taken off again; but whether it is not better to divide the Muscles of the *Abdomen* and the *Peritonaeum*, and draw out with the Fingers the fallen-in Gut, than to suffer the Patient inevitably to die.

4. The *Mesentery*, from it self, and also from the great number of the Glandules is subject to *Inflammation*, *Tumors*, *Ulcers*, and to *Corruption*. These Diseases, seeing they are very difficultly distinguished from others, require an experienced Physician; we likewise speak the same of the *Sweet-bread*, and of the *Spleen*: Yet in the meantime, I will communicate to you this Plaister, whose virtues I have often experienced in the Cure of the Tumor of the said Parts.

Take Gum *Caranna*, *Ammoniacum*, of each a dram; Quicksilver kill'd with Turpentine, half an ounce: Make it into a Plaister.

5. The *Ligaments* of the *Liver*, which joyns it to the Diaphragm, and to the Sword-like Cartilage, are often so much relaxt, that the Liver descends to the Region of the Navel; this we remedy with this Plaister.

Take Roots of *Bistort*, three ounces; Bole-*Armenick*,

menick, two drams; Cummin-seeds, a dram; Gum *Galbanum*, an ounce; *Ol. Nucista* exprest, a dram: Make it according to Art into a Plaster.

Moreover the *Liver* is not freed from *Inflammations*, *Ulcers*, nay not from *Gangrene* it self.

6. The *Gall* may be broke from an extream Cough; a Stone also, nay sometimes many, are generated in it.

I was last year with a certain *Scot*, who in the space of four weeks voided two hundred Stones and more by Stool, and was cured only by the use of the following purging Conserve.

Take Electuary of the juyce of *Roses*, an ounce; Powder of *Jalop*, a dram; Spirit of Salt, a scruple: Make it into a Conserve. Let him take each day or each other day the quantity of a Nutmeg.

7. For *Wounds* and *Ulcers* of the *Kidneys*, our Chirurgery furnisheth you with sufficient Medicines.

The *Ureters* are also subject to Exulcerations, but are cured by the same means, which are proper in *Ulcers* of the *Kidneys*: If they are broke either by a great Stone, or other Cause, the Disease is accounted incurable.

8. Besides Stones, *Worms* also are generated in the Bladder, which may be expelled by *Diureticks* mixt with those things that kill *Worms*.

Take *Aqua Antinephritica*, an ounce; Water of *grafs*, two ounces; Spirit of Salt, six drops; *Corallin*, a scruple; Syrup of *Wormwood*, an ounce: Mix them. Let the Patient take one half in the Morning, the other in the Evening.

This injection also is convenient, it bringing them forth in a short time.

Take

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Take Holy-Thistle-water, six ounces; Mirrhe, Aloes dissolved in Spirit of Wine, of each a scruple; Honey of Centaury, half an ounce: Mix them.

9. The *Testicles* may as well as the other parts be inflamed; where, besides the general means, these outwardly are convenient: In the beginning let this Cataplasme be applied.

Take Powder of Red-Roses, Myrtles, Balauftians, of each two drams; Barley-Meal, two ounces and an half; Oyl of Roses, Elder-Vinegar, of each an ounce; Red-Wine, as much as is sufficient to make it into a Poultrice.

In a vehement pain.

Take Meal of Linseed, Barley and Fenugreek, of each an ounce; Leaves of Henbane, a handful; Mallows, half a handful; Hogs-grease, an ounce; Oyl of Poppy-seeds, an ounce and half; Milk, as much as sufficeth to make it into a Cataplasme.

If after the Inflammation an Ulcer follows, let the Chirurgeon assist Nature with Suppuratives, the following Plaister is excellent to mollifie, ease pain, and to suppurate, which is also very good in any other Tumor.

Emplastrum Filii Zachariae.

Take yellow-Wax, Oxes-Marrow, Hens and Ducks-grease, of each a pound; the Muffilage of Linseed, Marshmallows, Fenugreek, of each four ounces; Oyl of Linseed, as much as sufficeth to make it into a Plaister.

The matter being come to suppuration, must be discharged, which the Chirurgeon may do with a Launcet; for I cannot commend to him here a potential Caustery, from which I have observed very

ill success: Let the Orifice be little, and penetrate only the Tunicles. For in this case although the matter be good, nevertheless the Disease is dangerous, and easily degenerates into a *Cancer* or *Gangrene*, which cannot be taken away more conveniently than with a Knife, and must be done at the first appearance of it; then let the Chirurgion endeavour to cure the Ulcer as soon as possible, after the following manner; Let the Part be defended from all cold, and continually corroborated by Medicines, that the natural heat may be preserved in it: This Lotion used warm, is good.

Take Flowers of Balauftians, Red-Roses, Myrtles, of each two pugils; Aloes, a dram; Frankincense, two scruples; Plantane-water, three ounces; Red-Wine, as much as sufficeth: Boil them, and strain them.

This being used, apply the following Ointment, putting over it a Plaister or Cataplasma moderately discussing.

Take prepared Tutty, Ceruse washt, of each two drams; Red-Lead, Litharge of Gold, of each a dram; Sarcocols, three drams; Burnt-Lead, two drams; *Unguentum Apostolorum*, half an ounce; Oyl and Wax, as much as sufficeth to make it into an Ointment.

10. If the *Yard* be wounded, for the most part it is mortal: This Ointment is very excellent.

Take washt Ceruse, three drams; Mirrhe, Litharge, of each a dram and half; Sarcocols, prepared Tutty, of each a dram; Tragaganth, two drams; Oyl of Roses, as much as sufficeth to make it into an Ointment.

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An *Inflammation* of it is cured in the same manner as an *Inflammation* of other sensible parts ; but if an *External Ulcer* should happen , the Cure must be performed both by Internal and External Medicines, lest it contracts a Malignity, and degenerates into a *Sphacelus*.

Take Litharge , half an ounce ; Burnt-Lead , three drams ; prepared Tatty, two drams ; Aloes, a dram and half ; Pine-Bark dried, four scruples ; *Lapis Hematidis*, a dram ; Seeds of Dill burnt, of Gourds burnt, of each two scruples ; Oyl of Roses, Quicksilver, of each three drams ; Wax, as much as sufficeth to make an Ointment.

But if it yields not to this by reason of its foulness,

Take Verdigreece, half a dram ; Water of Plantane and Roses , of each two ounces ; White-Wine, four ounces ; Spirit of Wine , an ounce : Mix them, and boil them a little

To this may be added, Mercury precipitate, if there be occasion.

A *Sphacelus* in this case, hath no certainer cure than extirpation in part, or wholly, lest the mischief creep inwardly, and kills the Patient.

How the *Internal Ulcers* of the *Yard* ought to be cured, we have set down in the Chapter of particular *Ulcers* : But in this we may describe this Medicine, by the use of which a Cancerous *Yard* was cured.

An Unguent of Peter Baierus.

Take the juice of the tops of Bramble, Stalks of Roses, Vinegar, of each two ounces ; Frankincense, Mastick, of each three drams ; Litharge of Gold,

Gold, an ounce; Sack, four ounces; Juice of Houfleeck, three ounces; *Aqua vita*, four ounces: Verdigreese, two ounces and half; Vitriol, burnt-Alom, of each a dram and half; Camphire, a dram; Oil of Roses, four ounces: Powder those things that are to be powdred, very fine, and being searched, let them boil all together upon a gentle fire, except the Camphire, which is to be put in at the end, to the consumption of the Juices, then add the Wax, and make it into an Ointment.

11. The *Spermatick Vessels* sometimes in Women, are so greatly obstructed, that together with the Testicles in the side of *Hypogastrium*, they swell to the bigness of ones Fist.

12. In the *Tubes* of the *Womb*, the Womans Seed is sometimes corrupted, from which arise grievous Symptoms; the Courses being for some Months obstructed, oftentimes there follows a Dropsie; the Water here collected, we have observed in dead Bodies that have been opened, to flow directly through the *Tubes* into the *Duplicature* of the *Peritoneum*.

13. The *Womb*, from the preternatural afflux of Blood, is often inflamed, especially in lying-in Women, and in those whose Courses flow disorderly, this Inflammation oftentimes is changed into an Abscess, if negligently handled; whose Cure belongs to the Physitian: But a *Sphacelus* is incurable. For what the Ancients relate concerning the extirpation of the *Womb*, to wit, that it may all be taken off without any great danger, is to be reckoned amongst their other Errors; but whether this *Animal* in living Creatures, this
necessary

necessary part, joyning to so many other parts, and furnished with such abundance of Arteries, may be cut out without danger of Life? The same thing I believe hath hapned to them in this case, as hath happened in the describing and curing the falling down of the Womb, who here and there have taken the extended Tunicles of the *Vagina Uteri* for the Womb it self; for I easily grant these Tunicles may without any great danger be taken away: But I truly esteem a *Sphacelus* of the whole Womb to cause certain death.

14. The Neck of the Womb is subject to *Hæmorrhoids* in the same manner as the straight Gut is; these flowing, may be distinguished from the Courses by these following signs; in the flowing of the Courses, we can observe no Branches of the Vessels in the Neck of the Womb, they come out of the Womb it self, and they cause no pain, except in the *Hypogastrium*; these Vessels by which the Evacuation is made, are the *Hypogastrick* and *Spermatick Arteries*; but the *Hæmorrhoids* are the Branches of *Vena pudenda*, they may be known both by the sight and feeling, and there is no pain but in the privy part it self: They ought to be treated in the same manner as the other *Hæmorrhoids* are; to ease pain, this Ointment is excellent.

Take Mussilages of the Seed of Quinces, Marshmallows, of each half an ounce; Saffron, Oyl of Roses, Hens-grease, of each a dram; the Yolk of an Egg: Make it into an Ointment.

This

This Mixture is excellent.

Take Litharge of Gold, wash'd Ceruse, burnt-
Lead, of each a scruple; Purslane-water, five
ounces: Mix them.

Let the *Hæmorrhoids* be wash'd with it, and let a
Linnen Cloth dipt in it be applied to the Part affe-
cted.

The End of the fourth Book of the third Part.

The



The *FIFTH* BOOK.
Of the *Joynts*.

CHAP. I.

Of the Hand.

Under the name of the *Hand*, we comprehend also the *Arm*, whose Teguments, both proper and common, as also its Vessels, are already sufficiently described.

It is commonly divided into three parts.

1. The *Shoulder*.
2. The *Cubit*.
3. The *Hand*, properly so call'd

The *Shoulder*, or upper part of the *Arm*, consists of one *Bone*, and nine *Muscles*.

The *Muscles* are,

1, 2. *Delteides*, and *Supra spinatus*, which two raise it upward.

3, 4. *Anisclptor*, *Latissimus*, and *Rotundus major*, which two pull it downward.

5, 6. *Pecto-*

5, 6. *Pectoralis* & *Perforatus*, or *Coracoides*, which two draw it forward.

7, 8, 9. *Infra-spinatus*, *Rotundus minor*, and *Immersus*, or *Subscapularis*; which three move it backward.

By these three last moving together, the Arm is as it were turned about, and obliquely outwardly raised up.

The Bone is great and long, its Head or upper extremity is invested with a Cartilage, Membranous Ligament, and four Tendons, and furnished with a particular Cavity, in which the Tendon of the Muscle *Triceps* lies.

The Lower Extremity is like unto a Pulley, which permits the Cubit to be bent very much inwardly, but not to extend beyond the right Line.

The Cubit consists of two Bones, which are by proper Muscles properly moved, which although out of order, we are forced to set down in this place.

The Lower Bone, which is greater and longer than the other, is call'd *Ulna*; in its upper extremity are two triangular processes observed, which are call'd *Rostra* or *Glandes*.

The Lower Extremity ends with a round Knob, to which is joyned a sharp Process, which is call'd *Styloides*.

It is moved by four Muscles, of which two are Flexors.

1. *Biceps*.
 2. *Brachians*.
- Two Extensors.
1. *Longus*.
 2. *Brevis*.

The upper Bone, which is less and shorter, is call'd *Radius*, or the *lesser Focil*, it is received into the upper part by the *Ulna*, in the lower part it receives the *Ulna*, in the middle they are a little distant from one another, which space is yet fill'd with a thin Ligament.

It is also moved by four Muscles, whereof two are *Pronatores*, or pullers down.

1. *Rotundus*

2. *Quadratus*.

The other two are *Supinatores*, or raisers up.

3. *Longior*.

4. *Brevior*.

Some add to these two other Muscles, but they are very seldom found, and diversly described.

The *Hand* is divided into three parts, the *Carpus*, or Wrist, the *Metacarpus*, or the distance between the Wrist and *Fingers*; and the *Fingers* themselves.

The *Carpus* hath four Muscles.

Two *Flexors*, the *Cubitæus*, and the *Radius internus*.

Two *Extensors*, the *Cubitæus*, and *Radius externus*.

Under these lie eight little *Bones*, as yet without name, which are in the first years Cartilaginous and soft, but afterwards become harder; they are tied and joyned together with strong *Ligaments*.

The *Metacarpus* hath two Muscles, call'd *Palmares*, *longus* & *brevis*.

And four *Bones* fastned to the *Carpus* by the assistance of the Cartilaginous Ligaments.

The *Fingers* consist of fifteen *Bones*, which as yet have no certain names given them, and fourteen Muscles; whereof,

Two

Two are *Flexors*, *sublimis & profundus*.

Two *Extensors*.

Four *Adductors*, *Lumbricales*.

Six *Abductors*, or *Interossei*. Three are *External*, and as many *Internal*.

Besides these, the *Thumb* and *Little Finger* have a particular *Flexor* and *Extensor*.

These are besides to be considered in the *Hand*,

1. The *Armillæ Membranosa*, which is a round Ligament, comprehending the many Tendons of the Hand, as it was in a Circle, easily divisible into many others.

2. *Vagina Membranosa*, which hold in the Tendons contained in the Hand.

3. *Fissura oblonga*, framed in each Tendon, for the passage of the Tendons of the Muscles moving the third Joynt; this serves in nature of a Pully.

4. *Ossa Seseamoidea*,

Chirurgical Considerations.

1. The Shoulder oftentimes is broken or put out of joynt, but is oftner afflicted with a *Cathar* and *Gout*. In a cold *Gout*, I never found any thing more efficacious than the Suptick Plaister of *Crotalus*, mixt with Oyl of *Bricks* or *Philosophers*; as also the following Plaister.

Take Naval-Pitch, Colophony, of each three ounces; Mussilages, of Marshmallow-roots, two ounces and an half; *Ammoniacum*, *Galbanum*, Mastick, Mirrhe, Frankincense, of each an ounce and half; *Propoles*, Mistletoe of the Oak, round Birthwort, burnt Brass, yellow-Wax, Turpentine, of each three ounces; Oyl of Earth, two ounces,

ounces: Make it into a Plaister according to Art.

In a *bot Cathar*, or the like *Gout*, I have always found this Fomentation of singular use.

Take Vitriol, white and green, of each half an ounce; prepared Nitre, six drams; Crude Alom, one dram; Mirrhe, two drams; *Opium*, a dram; White-Wine, half a pint; rectified Spirit of Wine, ten drams: Elder-Vinegar, three ounces: Mix them for a Fomentation.

Under the *Arm-pits*, Venereal Buboes appear as well as in the Groins.

2. Often *tough Phlegm* seizeth upon the Joynt of the Shoulder and Elbow, from whence comes a stiffness. I have learnt by experience to esteem much in this case of Balsom of *Peru*, as also of the following Ointment.

Take Fox-grease, and Rams-grease, Fresh-Butter, of each two ounces; Oyl of Earth-worms, an ounce; rectified Spirit of Wine, four ounces; boil them to the consumption of the Spirit of wine; then add Oyl of Rosemary, of Amber, of each three drams; of Tiles, or of the Philosophers, two drams: Mix them, and make it into an Ointment.

One or more of the little Bones of the *Carpus* oftentimes are *dislocated*, which, if not presently reduced, becomes an incurable evil.

A *Ganglion* is here very frequent, besides the *Cathar* and *Gout*, whose cure we have but just now taught.

4. In the *Metacarpus* and Fingers, both above and below meet many Tendons, which are easily injured in Wounds and Ulcers, which is carefully to be observed, lest a Palsie follows: In which

o other Medicines are needful, than what we have already in the foregoing declared: But these are chiefly to be considered of; 1. That the Bandage is not to be bound too hard. 2. You must not put in the Probe too deep, nor too often. 3. The Hand and Fingers are to be placed upright, not depending. 4. These Parts are easily affected with a *Sphacelus*, which these signs certainly denounce: When there is no matter in due time; the Lips in the beginning are dry, or yield a little thin moisture; the heat, pulsation, and redness is greater here, than in the fleshy parts; afterwards the Lips are turned in, and become livid, and at length black. In this case, all those Medicines are to be applied that may put a stop to the *Gangrene*, and as formerly we have set down.

CHAP. II.

Of the Foot.

THe Foot is also divided into three parts; to wit, into the *Thigh*, *Leg*, and *Lower Foot*.

The *Thigh* hath but one Bone, to whose motion serves fourteen *Muscles*.

Two Flexors, *Psoas* and *Illiacus*.

Three Extensors, *Gluteus Major*, *Medius* and *Minimus*.

Three Adductors, *Triceps*.

Six Abductors, *Quadragemini & obturatoria duo.*

The Abductors and Adductors working together, rowl about the Thigh.

The Thigh-Bone is the greatest of all the Bones of the Body, outwardly it buncheth forth, and is a little bended inwardly, and so descends internally oblique to the Knee.

It hath three *Processes*, easily separable in Infants.

The Leg consists of two Bones; the greater of which, is in the inside, and is call'd *Tibia*, or the *greater focile*; the lesser, which is in the outside, is call'd *Fibula*, or the *lesser Focile*; both very much resembling the Bones of the Cubit; they are a little distant one from the other, but are tied together by a Ligament,

It is moved by eleven *Muscles*, which are,
Four Extensors, *Rectus, Crureus, Vasti duo.*

Four Flexors, *Biceps, Semimembranosus, Seminevrosus, Gracilis.*

Two Adductors, *Longus and Popliteus.*

One Abductor, *Fascialis.*

Between the Thigh and Leg lies the *Patella* or *Knee pan*, in Infants Cartilaginous, in old people, hard and strong, placed on the outside of the Joynt.

The Foot is divided into three parts, the *Tarsus*, *Metatarsus*, and *Toes*.

The *Tarsus* is moved by six *Muscles*, viz.

Two Flexors, *Tibians anticus & Peroneus.*

Four Extensors, *Biceps*, two *Gemelli*, and *Soleus*, to which many add a fifth, *Tibians posterior.*

Three

Three of these Extensors from one very strong Tendon, which is called *Chorda Hypocrotica*.

It is made up of seven Bones, which are,

1. *Talus*, or *Astragalus*.
2. *Calx*, or *Os Calcis*.
3. *Os Naviculare*, or *Cimbiforme*.
4. *Os TESSERA*, or *Cuboides*.
- 5, 6, 7. *Ossa tria Cuneiformia*, or *Sphenoides*.

The *Metatarsus* consists of five Bones.

The *Toes* have fourteen Bones; for the great Toe hath but two Joynts.

The *Metacarpus* hath no Muscles, except *Planaris*, which is not unlike *Palmaris*.

The Muscles of the Toes are seventeen, to wit,
Two Flexors.

One Extensor of the four Toes, for which use it is furnished with a fourfold Tendon.

Four Adductors, or *Lumbricales*.

Ten Abductors, or *Interossei*.

To the great Toe are peculiar,

One Flexor.

One Extensor.

Two Adductors.

One Abductor.

Here also, as in the Hand, are observed the *Ossa sesamoidea*, which are alwayes placed between the full grown Joynts, partly that they may corroborate the Joynts, partly that they may defend the tender Joynts; in old people they are alwayes numbered from ten to twenty, never in Children.

Chirurgical Consideration.

The Foot in its natural constitution, as also in its Diseases, hath many things agreeing with the Hand, therefore it would be superfluous to repeat them over again.

1. Considerable here is the *Sciatick pain*, caused from a sharp Humor gathered in the Joynt, where the Thigh-bone joyns with the *Os Ischium*; when the *Ligament* tying these Bones together, is from such an Humor relaxed, the Bone recedes from the natural places, and brings upon that Part a lameness: If the Bone or Cartilage be corroded, and the Vessels compressed, there follows an Atrophy of the Legs, and sometimes of the whole Body.

2. *Tumors* in the *Knee*, are very dangerous and hard of Cure, by reason of the firmness of Muscles, the great number of Ligaments, Tendons, and Bones, and the cold and dry nature of the Parts, not being of force sufficient to dissipate the moisture; therefore 'tis most necessary to assist it with warm Medicines as soon as possible; and if any signs of Suppuration appear, forthwith let it be opened, lest otherwise the Patient becomes lame, the Part wastes, and at last happens Death it self. Upon the opening of the Abscess, for the most part there follows a gleet of some Humor, which renders the Cure very difficult: For this I commend the often praised Restorative Powder.

3. A great *Tendon* is inserted in the *Calcaneus*, or Bone of the Heel, which being wounded, or much contused, brings Convulsions, and Death it self.

About

About this place comes Kibes, whose cause is intense cold or heat with driness: Here first are observed Fissures in the Skin, then follows an Ulceration: All fat things and Plaisters profit here, especially the following.

Take Powder of Galls, of round Birthwort, of each half a dram, red Lead, a dram; Mercury sublimate, six grains; Litharge, Mårhe, of each a dram and half; Camphire, a scruple; Frankincense, two drams; green Wax, as much as sufficeth to make it into a Plaister.

In the room of green Wax, you may take the Fat of Deer, or of Rams.

4. The Fingers or Toes being frozen, must be rubb'd with Snow, or with a bruised frozen Turnep; then this following Plaister is much commended.

Take Hog-grease, fresh Oyl of Olives, of each an ounce; white Wax, two ounces: Boil them a little, and make a Plaister.

5. Issues are often made in the Joynts; we have formerly declared the place: In the Arms, between the Muscle *Deltoides* and *Biceps*; in the Thigh, two fingers breadth above the Knee in the inside; in the Leg, the uppermost, two fingers breadth below the Knee; the lowermost, two fingers or three above the Ankle. That you may make these Issues without pain, instead of a Conclusion, take this Caustick, which works without pain; which is also very much to be commended in sordid and cancerous Ulcers, and in Excrescencies.

Take Crude Brimstone, white Arsnick, Crude Antimony, of each two ounces; the Brimstone being melted by a gentle fire, and stirred about with

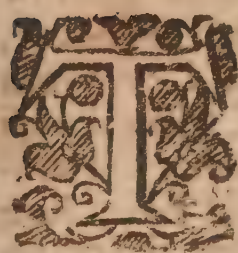
with a *Spatula*, add the Arsnick and Antimony powdred, and mix them whilst they are incorporated with the Brimstone, and look red. Afterwards,

Take of this Mixture, an ounce ; *Caput mortuum*, of Vitriol, half an ounce : Mix them, and make a Powder ; let it be washt six times in Spirit of Wine, and dried for your use.

A



A
TREATISE
OF THE
PLAGUE.



THE Plague is a Disease whose Nature is not to be comprehended by us; the Cause thereof seems to proceed from a Spirituous and Infectious Vapour, which is powerful enough to make a sudden dissolution of the Consistence of the Blood, by which means the Heart is deprived both of strength and life.

I do assert that the Nature of it is not to be comprehended by us, as well because it is a Punishment inflicted on us by the immediate Hand of Almighty God, who vouchsafes not that his Incomprehensible Wisdom and Essence (which is sometimes faintly described to us) should be narrowly pryed into by his Creatures; as also that it is in it self so mutable, that if we should seriously

seriously recollect our selves, and recount the several Pestilences wherewith all former Ages have been visited; we shall not thereby be able to instance in two of that whole number which have agreed with each other in all Circumstances: From whence we may easily infer, that in the Cure of this Disease, an Experienced Physitian may much more safely follow the Dictates of his own Reason, than adhere strictly to the Method & Prescriptions of others. For although it doth sometimes by the more remarkable Symptomes sufficiently evidence it self, yet we cannot likely discover its Nature and Essence, although we should the most industriously attempt it.

But that we may cautiously enquire into it, we must know that it is sometimes not accompanied by any Fever: And it is necessary, that what Physitian soever is ignorant of this, should either by perusing good Authors, or his own Experience, acquaint himself thoroughly with it. I have been sent for to several Patients my self, who although they appeared otherwise in good health, not refusing their Meat, nor disturb'd in their sleep, have nevertheless had Buboes arising in their Groin, on their Neck, under their Arm-pits, or behind their Ears, which have apparently discovered a greater Malignity than could be discerned in those Buboes, which in other persons have been attended by a violent Fever: And many hereupon who have been incredulous, and lightly regarded the cautions which I have given them upon this account, have with great danger to themselves, experimented, that as soon as those Buboes have sunk down, the Pestilential Symptoms which have appear'd, have been very dreadful, and much more dangerous than in those

those that have carefully used the Means prescribed to them, who have been also much more easily and speedily cured than the other.

Sometimes the Plague is accompanied with a Fever; and again, there are some Pestilent Fevers without the Plague.

To distinguish this Fever from the Plague, I used to observe, that they that are seized with it, complain of pain in their Head and Stomach, which sometimes is dispersed over the whole Body; sometimes it confines it self to the Armpits, the Neck, the Parts behind the Ears, or to the Groin. To outward appearance, there is not the least swelling. If the Patient by such means as is requisite be provoked to sweat at the beginning of the Disease, the pain utterly ceaseth, and in a few dayes he will be perfectly restored to his health, the Disease not having at all discovered it self by any outward Symptoms. Why such a Fever should be accounted a Species of the Plague, I see no reason; But there is no one but will confess it to have seized on that Body on which Buboës, Carbuncles, and Spots do outwardly appear.

The cause of the Plague is either *Internal* or *External*; but unto which soever we impute it, it is necessary to conclude, that there is in it a power of dissolving the natural Consistence of the Blood, and depriving the whole Body of its strength.

As to the *Inward Cause*, which is *Meat* and *Drink*, it is evident to all, that it cannot produce in any Body whatsoever so great and sudden a change;

change; but it is most certain, that by a long and continued course of bad Diet, the Blood may by degrees be after such a manner dissolved, weakned, and corrupted, that some part of it assuming to it self a malignant quality, a man may be surprized by a sudden Disease, and sometimes be deprived of life it self; which hath been observed in sick persons at several times, when there hath been no contagion in the place, nor any suspected, who have been troubled with perfect Buboes, and other Symptomes of the Plague, much more intolerable than others have been at any time when the Air hath been infected.

As to the *outward Causes*, every one confesseth that there are such; but their Nature is known but to few: The Chymists, who are able by the force of Fire distinctly to separate the Parts of simple Drugs, endeavour to find the Original of the Contagion in a *Volatile Salt*, which suddenly dissolves the fixed Salt of the Blood; which hath indeed some appearance of truth, though it will not be relished by all men.

If you enquire into the Cause hereof from others, their answer will be various, but most of them very idle and impertinent.

It hath by some been thought probable that a Plague might proceed from the *Heavens*; they affirming that the *Stars* do actuate the Sublunary Bodies, both by the influence of their Light, and by several other qualities inherent in, and peculiar unto them. But the Conjectures raised from hence, are very uncertain, and the foundation of them unsecure. We are not ignorant of the Fopperies of Astrology, and of the vanity of those Predictions, which have no other Foundation

dation than the several Courses, the Conjunction and Opposition of the Stars; which are all so frivolous, that we cannot think it worth our labour to refute them.

We acknowledge that the *Air* may be several wayes corrupted; from whence the Vapors which have been received from the Earth, are sent down again amongst us, which like Fire may inkindle our Blood, *Corrupt waters*, *Carcasses* either not at all buried, or else shallowly interred; the South-Wind, which may be supposed to promote the Putrefaction; *Men* already infected, and successively imparting the Contagion to the sound; and by that means spreading the Venom through the Bodies of Men, and the Air it self.

This Pestilential Infection may likewise for a long time lie couched and concealed in *Straw* or *Stubble*, amongst *Garments*, *Hangings*, and the *Furniture of Beds*; which we have sometimes observed strangely to impart their Malignity to those that have handled them, or approached unto them.

But all these things only inform us of the means by which this Pestilential Poyson is conveyed unto us; but no one hath as yet declared what it is, and wherein its Nature doth properly consist.

The Symptoms of it are these. The sick Persons are seized with a shivering all over their Body, which is presently followed with an inward heat, which is oft-times very intense, yet without any great thirst; sometimes the thirst is excessive, and the Fever moderate. But whether the heat of the Fever be great or small, it is most commonly accompanied with a dryness of the Tongue,
and

and an Urine of the same constitution which you might expect from a man in perfect health : They are taken sometimes with a great drowsiness, sometimes with a Delirium, or with an excessive pain in the Head ; and in this case, the White of the Eyes appeareth of a Saffron-colour; and they are more wakeful than is consistent with their ease and quiet : great pain at the Heart, the Pulse seems small, if not at first when you touch it lightly (for then it oftentimes appears to beat high) yet at least when you press it closely with your Fingers. The strength fails in the beginning of the Disease, and decreaseth much more visibly than in the most burning Fever, which hath no Malignity attending it. Some are taken with a *Diarrhœa*, which can by no means be stopt : Others bleed much at the Nose, the Eyes, the Ears, or Mouth ; some at the Yard or Womb. Some are troubled with a continual Vomiting, others with a Nauseousness. On some Bodies there appear red or purple spots ; and on others Buboës behind their Ears, on their Neck, under their Chin, in the Groin, and under the Arm-pits : In some there break forth red Wheals or Pusles ; in others white Bladders, or Carbuncles. And wheresoever these Bladders, Buboës, Carbuncles, &c. do appear, they are a most certain sign of the Plague, although the bigness of them may be inconsiderable ; especially if they either accompany, or are Consequents of a Fever.

As to the Prognosticks, we must consider ; that the Plague is a very treacherous Disease, and whilst it flatters us most, it intends us the greatest mischief. A Bubo is less dangerous than a

Car-

Carbuncle; and a Carbuncle than the Spots, which very seldom portend less than present death where-soever they are display'd.

A Bubo behind the Ears, on the Neck, or under the Arm-pits, is more dangerous than that in the Groin.

Carbuncles on the Hands and Feet, may by some be thought less pernicious, because they are more remote from the Heart; but since they happen amongst many Nerves and Tendons, they are more to be feared than those which appear in other parts of the Body which are better covered with flesh.

A Carbuncle arising after a Bubo, is a sign of Death. If a Bubo or Carbuncle appear before the Fever, there is less danger than if they follow it at a distance, and arise slowly.

A blew Circle encompassing the Bubo the second day after its appearance, is a sign of Death.

If a Bubo suddenly disappears, the state of the Patient is dangerous, unless Nature dispatcheth the Malignant Humor to some other Part.

Thus we have often observed, that upon the retreat of *that Morbifick Matter* which hath caused a Bubo in the Groin, there hath appeared a Gangrene in the Foot, and on the same side which was before affected, and many have by that means escaped.

If a Cupping-glass applied to the Patient, raiseth no Blister, we may reasonably conclude his condition to be desperate.

It is an infallible sign of Death, if after Cauterization, or the application of a Cupping-glass, the Carburnule abates not in 12 or 24 hours, as likewise if there is no moisture proceeding from it;

but if a Bladder appears, or any separation of the matter be made (which is so much the better, by how much it is the greater) with a sufficient purulency, *the Patient is then past danger.*

A Carbuncle which seems to have a little tail, or Push at the end of it, is very dangerous, as are likewise those which look white; which, unless the Fever doth very much abate, are certain fore-runners of Death.

If the Patient that hath a Bubo in his Neck, or behind his Ears, be troubled with a pain in his Throat, and a difficulty in swallowing, and no considerable Inflammation appear, we have always found it a certain Rule, that in this case he outlives not 12 or 15 hours.

Sleep more sound than ordinary, *Deliriums*, waking often in the night, inflammation of the Eyes, pain at the Heart, a trembling and convulsion of the Joynts, are all very dangerous Symptoms, but do not alwayes portend Death.

A great Fever without a pain at the heart, is not so dangerous as a lesser, which is accompanied with that Symptom.

The greatness of the Danger may sometimes be judged from the great dryness of the Tongue.

If by the administration of *Sudorifics*, Sweat is not provoked, the Patient usually miscarrieth.

A Flux of Blood was heretofore held dangerous in all Plagues; but in our Age, all that can either bleed at the Nose, or have their Menstrua's, come off safe: We have no president of any that have pissed Blood; but a *Dysentery* is the sign of an approaching Death.

It is very certain, although it but seldom happens, that incurable Carbuncles do break out about the Eyes, Nose and Stomach, and even amidst the Entrails themselves.

If they seize on the Bladder, they become mortal to the Patient, and put him to excessive pain.

I can instance only in one, who after he had for 30 hours or more been troubled with the Spots, at length, after exceeding great pain, accompanied with a *Delirium*, he voided first Blood, and after that, a *purulent matter through his Yard*, by which means he was restored to his health; I conjectured that there was a Carbuncle in the case, which seized not on the Membranous part of the Bladder, but on the Neck thereof.

As to the *Cure*; *Blood letting* is very prejudicial to those that already have the Plague, and dangerous to such that would prevent it.

The Poison oftentimes lies hid within the Body for some dayes, weeks, or months, before it discovers it self by seizing on the conveyances of the Blood. Wherefore I would advise you seriously to consider, if by opening a Vein, you invite it immediately to the Heart, whether the diminution of Blood, Spirits and Strength, which is effected by this means, be not the Cause why the Heart is suffocated and deprived of that vigour which it should make use of to repulse the Enemy. I confess some Experienced *Physicians* of good credit, have reported, that in hot Countries, there is no better means for restoring a Patient visited with the Plague, unto his health, than that of opening a Vein, provided it be done cautiously, and at the beginning of the Disease;

but whosoever have attempted it in colder Climates, have quickly learnt by experience, that it ought to be forborn.

Purging, which is oftentimes very necessary in other gentle Diseases, is excluded by the Malignity of this. But every one is not quick-sighted enough to discern when it is requisite to be done, and when to be forborn: Moreover, it is evident, that in a Malignant Disease, the Physick which is administred to a Patient, ought to be more mild and gentle than at other times; for besides that the Body cannot then bear strong purgations, a *Dysentery* is oftentimes the consequence of them. I have when I have been fully perswaded that there was no Malignity in the Disease, oftentimes used this, or some such like Potion with good success, viz.

Take Rhubarb, a dram and half; Senna, two drams; Cream of Tartar, a dram; Scorzonera-Roots, half an ounce; Aniseeds, half a dram; Boil them in Holy-Thistle-Water, and to three ounces of the strained Liquor, and Syrup of Sycory, with Rhubarb, six drams; Spirit of Salt, a little; Confection of Alkermes, a scruple: Make it into a Potion.

I never adventured to prescribe any thing Purgative to such as have been taken with the Plague, before the fourteenth day, at which time the Fever and the other Symptoms of the Disease would be abated. There are some who have attempted it while the Carbuncles remain purulent, and before the Bubo is perfectly cured.

But I dare not advise any one to follow that Method, whatsoever Remedies they administer at the

the same time, which may be intended specifically against the Plague.

But if it happen that the Patient for several days be very costive, and troubled with a pain at his heart, and hopes to be relieved by *Purgation*.

It is to be considered, that the Venom of the Disease, and not the Costiveness is the cause of the pain at the Heart; it is therefore most requisite to make use of *Sudorificks*, to corroborate the Heart, and not to concern your self for the costiveness of the Body; but if you desire to open it a little, it is better to make use of a *Suppository* than a *Glyster*, which is not altogether so safe, but hath been prejudicial to many on this occasion: and to others it hath done but little good, and not at all opposed the Malignity of the Disease: But to such as will not take this advice, which hath been very confirmed by experience & several good Reasons, and will still persist to make use of *Glysters*, it is fit however that they forbear to prescribe *Scammony* as an Ingredient, especially to Women in the time of their Flowers.

Fuleps are in this case very necessary; but all persons may not make use of them, nor any at all times. I am never wont to prescribe them without joyning with them some *Sudorificks* (which will appear hereafter) and this I take to be the safest course; for if the sick person should make use of such things only as refrigerate whilst he sweats freely, the Sweat would oftentimes strike inward, and the Venom would be conveyed to the Heart, from whence would follow sudden Death.

There is no means more requisite than that of *Diaphoreticks* and *Cordials*, especially those that are acid, which produce such effects as are certain, and therefore the more laudable; for they rectifie the Mass of Blood, and free it from the venom which infects it. They dissolve the pituitous Matter which is lodged in the Stomach and the Entrails, and correct the Cholera, which in this Disease is the cause of much mischief. Nevertheless the several disguises of this Disease, and the vanity of the Symptoms which attend it, do require that they should be often changed, since when the Disease is more gentle, those things are not to be used, which would do good service in an acute one.

Medicaments against the Plague.

Roots of Zedoary, Butter-Bur, Angelica, Dittamny, Galangal, Vipers-grass, Gentian, Masterwort, Lovage, Burnet, Orrise Florentine, and ours, China, Sarsaparilla.

Leaves of Rue, Scordium, Sage, Holy-Thistle, Swallow-wort, Wormwood, Southernwood, Centaury the lesser, Valerian, Sorrel, Fluellin, Balm, Marjoram, Rosemary, Thyme, Mint.

Flowers of Borage, Bugloss, Violets, Roses, Marigolds; St. Johns worts, Rosemary, Indian-Spikenard, Jesamy.

Seeds of Citrons, Oranges, Rue, St. Johns wort, Anise, Coriander, Lovage.

Fruits, Citrons, Oranges, Walnuts, Figs, sharp Cherries, Pippins, Ribes, sowre Pomegranates, Barberries.

Spices, Musk, Ambergreece, Civet, Benjamin, Storax

Storax Calamita, Cinamon, Mace, Nutmegs, Cardamums, Camphire.

Animals, or their parts, Flesh of Vipers, Mummy, Serpents, Quails, Thrushes, Harts-horn, Unicorns-horn, Bezoar, Stone of an Indian Hog, Ivory, Castor.

Precious Stones and Earths, the Iacinth, Granate, Emerald, Ruby, Carbuncle, Pearls, Coral, Bolearmenick, Earth of Lemnos, and Seal'd, Gold, Silver.

Salts, Common, brought lately from the River Nile, which moveth Sweat most powerfully; of Scordium, of Wormwood, Rue, Self-heal; Holy-Thistle, Vitriolated Tartar, Bezoarticum Minerale.

Treacle of Andromachus's, Diateseron, Mithridate of Damocratis, Diascordium of Fracastorius, Confection of Alkermes, of Hyacinth.

Species Liberantis.

Electuaries, of the Egg, Rob. of Currans, of Barberries.

Conserves of Balm, Mint, Rosemary-Flowers, Borage, Bugloss, Marigold-Flowers.

Troches, of the Juice of Barberries, of Citrons.

Out of all which, you may make choice of such as you judge most fit for the purpose.

The Writings of Authors, who have treated of this Disease, will give you an account of other Compounds, out of which you may chuse such as please you best.

I shall here propound such only as I have found to be most efficacious, and which I shall constantly make use of, till by experience I shall discover some

others, whose nature is more excellent; and that the use of them may the more plainly appear, I shall premise some Medicaments that some years since were prescribed by my self, and those Learned Men, Dr. *Francis Sylvius*, and Dr. *Francis Vanderschagen*, wherewith we thought it necessary to oppose that pernicious Enemy with which we were to contend.

Our Prophylactick Water.

Take Roots of Angelica, Zedoary, of each an ounce; Roots of Butter-Bur, two ounces; Leaves of Rhue, four ounces; Leaves of Balm, Scabious, Marigold-Flowers, of each two ounces; unripe Walnuts sliced, two pound; fresh Citrons sliced, a pound: let them be all bruised together, then poure upon them six quarts of the best Wine-Vinegar distilled by it self in a Glasse *Cucurbit* in Sand.

Let them digest a night, then distil them with a gentle fire of Embers to driness, but without burning, and preserve this Vinegar for your use.

If you desire an *Extract* or *Salt*, poure some of the distilled Liquor upon the *Caput Mortuum*, or to the remainder, and let it digest for three dayes, till it hath drawn out a Tincture, which filtre, and distil the filtered Liquor in *Balneum Maria*, to the consistence of an *Extract*: After the *Extract*, calcine the *Caput Mortuum*, and draw forth the *Salt*.

Our Prophylactick Conserve.

Take fresh Citrons, two pounds ; the Juice hard prest out, the outward Coats separated from the inward Pulp, and bruised very small ; adding Conserve of White Roses, half a pound ; of Red-Roses, of Borage-Flowers, of each half a pound ; preserved Orange-peels, 4 ounces : Make it into a Conserve.

Our Alexipharmick Powder.

Take Roots of *Contrayerva*, half an ounce ; Pestilent-wort, Tormentil, Elicampane, of each two drams ; Sealed Earth, Bole-armenick, of each three drams ; Shavings of Harts Horn, Ivory, of each a dram ; Red Coral prepared, four scruples ; Biting Cinamon, two drams ; Diaphorerick Antimony, half an ounce : Make it into a Powder.

I have made use of these three foregoing Medicines with very great success, as have also those Famous Physitians before-mentioned, when they have applied them to several that have been visited with the Plague. When I have given them for a Preservative against the Plague, I seldom mixed any other with them ; but for the Cure of it, I never made use of them single, but have alwayes given them with these, or some such like, *viz.*

Take Diascordium of Fracastorine, four scruples ; *Sal Prunella*, a scruple ; Salt of Wormwood, half a scruple ; our Prophylactick Water, Holy-Thistle-water, Syrup of Barberries, of each an ounce : Mix them for a draught.

Or,

Or,

Take our Alexipharmick Powder, a scruple ; Vitriolated Tartar, eight grains ; Salt of Coral, fifteen grains ; Confection of Alkermes, half a dram ; our Prophylactick Water, an ounce and half ; Rue-Water, as much as sufficeth, Syrup of Holy-Thistle, an ounce ; Mix it for a draught.

Or,

Take Antimony Diaphoretick, a scruple ; Salt of *Scordium*, of Rue, of each half a scruple ; our Prophylactick Water, an ounce ; Camitory-Water, as much as is sufficient ; Julep of Roses, an ounce : Mix it for a draught.

Take Confection of Hyacinth, *Diascordium*, Threacle, of each two scruples ; our Prophylactick Extract, fifteen grains ; Spirit of Salt, half a scruple : Mix it into a Bole.

Take our Prophylactick Conserve, a dram and half ; Prepared Crabs-Eyes, a scruple ; our Prophylactick-Water, half an ounce ; Syrup of Limons, an ounce ; Elder-Vinegar, half an ounce : Mix it for a draught.

Take Bezoartick Minera, fifteen grains ; *Sal Prunella*, a scruple ; Lozenges of Sugar pearl'd, half a dram : Make it into a Powder.

Let the sick person take some of these Medicaments for the provoking of Sweat plentifully ; to which purpose, let him take Mutton or Chicken-broth an hour or two after he hath taken his Medicament ; let the Sweat be gently wiped off with a warm Cloth, and another applied to his Breast : For we have found it not safe to change the Shifts, and other Linnen about the Patient, unless they are too much moistened by sweat. We

We may safely administer these, or the like *Sudrificks* twice in a day to the Patient, or thrice in 24 hours, and that very much to his benefit.

There are some, who every six hours have very advantageously made use of a new *Sudorifick*. Nor are you easily to be perswaded to cease from the use of these means, although the Patient should tell you that he is well in health, lest you find the treacherous Disease of a sudden to surprize you both again.

For young Children (who do usually abhor the taking of Physick) I have found nothing better than the following Powder, given them in their ordinary Drink two or three times, in the space of 24 hours; the Sugar may be omitted, if the Patient disgusts sweet things.

Take Diaphoretick Antimony, 15 grains; Lozenges of Sugar pearl'd, a scruple and half: Make it into a Powder.

Or,

Take Crabs-Eyes prepared, Shavings of Ivory, Bezoartick Mineral, of each six grains: Make it into a Powder.

We will treat of Juleps when we come to discourse of the Cure of the Plague.

The Symptomes of the Plague.

They are many, and very various, but most of them are accompanied with some others; which when the former are cured, the latter are very easily removed. We therefore think it very needless to give an account of them all in this place, it will be sufficient to instance in the chief of them, amongst which, we in the first place encounter with

A Fever : Of such a Nature, that it admits not of any purging, or letting of Blood, which the Experience of several hath sufficiently confirmed.

The *Sudorificks* before prescribed are no less useful for this Symptom, than for the Plague it self; but the *Fever* and great driness of the Tongue, requiring such things as refrigerate, they are not to be administred, except they are mixed with *Sudorificks*, as we have shewn before.

Take Water of Borage, Sorrel, of each two ounces; our Prophylactick Water, an ounce and an half; Juice of sowre Oranges, fresh Citrons, of each two drams; Julep of Roses, as much as will make it conveniently sweet; Oriental Bezoar, fifteen grains: Mix them.

Let the Patient often take the quantity of a spoonful hereof at once, whereby his thirst will be much better allayed, then if he should drink ten times the quantity of Beer, and that without any check or hinderance to the Sweat.

Or,

Or,

Take Holy-Thistle-water, a pint ; our Prophylactick Water, two ounces ; Syrup of sowre Pomegranates, two ounces and an half : Mix them.

Or,

Take Scorzonera-Roots, Butter-Bur-Roots, of each an ounce ; Sorrel-Leaves, two handfuls : Boil them in Barley-water, and to a pint of the Liquor, add Syrup of Violets, two ounces ; *Sal Prunella*, two scruples ; or Spirit of Salt, as much as is sufficient : Mix them.

For the Rich, such like Juleps as these may be prepared, which are both pleasant to the Palate, and very Cordial.

Take Borage-water, three ounces ; Holy-Thistle-water, a pint ; Rose-water, an ounce ; Lozenges of Sugar pearl'd, an ounce ; Amber-greece, two grains ; Musk, a grain ; Juice of Citrons, as much as sufficeth : Mingle them.

Wesop-Ale, or some such like, which is well boyl'd, may here be very useful, especially if some Nutmeg scrap'd, or a piece of calcin'd Harts-horn be tied up and steeped in it. Nor need we fear any mischief from exceeding either in the quantity or the frequent repeating of it ; but we must take heed that it be not given cold, lest Gripings, Flux, and a pain at the Heart, and such like Maladies should be caused thereby,

To such who have weak stomachs, and a pain at their Heart, I do use to give the liberty, whpn their Fever abates, to drink *Mosel*, or *Rhenish-Wine* with

with Sugar, and the juice of *Lemons*, provided that they take it in a moderate quantity: But I believe they do err very much, who prescribe to their Patients, whilst the *Fever* continues still very high, some sort of *French Wine*, either alone by it self, or mixt with their *Sudorificks*.

That Oriental Stone, call'd *Lapis Porcinus*, or *Pedro Porco*, is of very great use, if it be steeped for a while in your ordinary Drink; for it strongly provokes Sweat, and very much refresheth the Heart.

This Stone, if I mistake not, is generated in the Gall of an Hog, for it is exceeding bitter; and though it be very hard, yet every time it is infused, it abates somewhat of its quantity, which is discoverable by the Tincture which it imparts to the Liquor. Nor is the Gall of a man sometimes void of such Stones, which are like unto those taken out of an Hog, in favour, hardness and Colour; and we might find them too perhaps in their efficacy likewise, if we thought fit to make trial of them.

This *Fever* is often accompanied with *Drowsiness*, which forbids the use of the principal *Sudorificks*, such as *Treacle*, *Mithridate*, *Diascordium*, &c. because there is *Opium* in their composition, which makes them not so effectual for the preventing of sleep. It is more requisite to use this following, which is agreeable for dispelling the Vapors which infect the Head, and the heat about the Heart.

Take Salt of Rue, of *Scordium*, *Prunella*, of each half a scruple; Vitriolated Tartar, 8 grains; our Prophylactick Water, an ounce; Balm-water, as much as sufficeth; Syrup of Betony, an ounce: Mix them for a draught.

Let

Let Sweat be thereby provoked, and let it be the Care of the Attendants, that after the first or second day, the Patient may be kept from sleep, if it be found that he hath strength to bear it.

There is sometimes joyned with the *Fever*, *continual Watchings*, and a great pain of the Head.

I do not use to be much concerned for the watchings, although it should continue for the first three dayes without intermission, for it often falls out, that by the use of *Sudorificks* only, the pain is the first day abated, on the second becomes tolerable, and on the third is quite taken away.

Opium hath in it the virtue of causing Sweat, and is a great Ingredient in *Treacle*, *Diascordium*, and *Mithridate*, which without it, would not in my judgment have that *Sudorifick* quality, for which they are now noted. It is also reckoned by several Authors amongst those Medicines which are famous for dispelling of Poyson, whose use is very requisite in all malignant *Fevers*; nor do I believe that there can any other Medicine be named which gives so present relief to the Patient as *Opium*; concerning the operation whereof, they are able to give a better account, who have been frequent and curious in the use of it. I have sometimes in this case (though contrary to Custom) given it sparingly, when I have found the sick person not to sleep in the first, second or third days: But when he hath waked for six or seven dayes together, and found a great decay of strength, this following Prescription, taken every quarter of an hour by a spoonful, till sleep hath seized on him, hath afforded great relief, and the sleep produced thereby, hath been undisturbed, and of long continuance.

Take

Take our Prophylactick-water, an ounce and half; Borage-water, an ounce; Cinamon-water, three drams; Confection of Hyacinth, a dram; Lozenges of Sugar pearl'd, three drams; *Laudanum Opiat*, two grains: Mix them.

You may safely make use of *Opium*, after the manner before mentioned; but in Cachectick and infirm Bodies, whosoever gives it too boldly, or is fearful of prescribing it at all, discovers that he understands not its Virtue and Efficacy.

Before I come to the use of *Opiat Laudanum*, I endeavour to ease the pain of the Head by these following, *viz.* By applying Ground-Ivy bruised to the Nape of the Neck, and to the soles of the Feet and palms of the Hands, this, or some such like Composition.

Take Leaves of Rue, a handful and half; sowre Leaven, two ounces; Pigeons dung, an ounce; Common Salt, half an ounce; Elder-Vinegar, as much as sufficeth to make it into a Poulrice, to be applied to the soles of the Feet, and palms of the Hands.

Or,

Take Bolearmenick, Seal'd Earth, Common white Chalk, of each half an ounce; Vinegar of Marigolds, as much as sufficeth: Apply it as before.

To the Forehead I have often applied the Powder of Cloves, moistened with the Spirit of Wine; for I take Vinegar to be hurtful, as are also all Emulsions.

Vomiting and the Hiccough is another Symptom of the Plague. It hath been observed by several who have been so curious as to open Bodies which have

have died of the Plague, that *Carbuncles* have often appear'd in the Stomach, and amongst the Entrails, whose testimony is not to be rejected, since it is so agreeable both to Reason and Experience.

These (if they are not the Cause of the Vomiting and Hiccough, may be easily removed by a spoonful of this following Preparation, taken cold every quarter of an hour.

Take Mint-water, our Prophylactick-water, of each an ounce and half; Cinamon-water, half an ounce; Confection of Hyacinth, a dram; Salt of Coral, a scruple; Syrup of Myrtles, half an ounce; Rose-Julep, half an ounce: Mix them.

By the use hereof, the Vomiting is usually stay'd, especially if the Stomach be sometimes annointed with this following Oyl.

Take Oyl of Nutmegs by Expression, a dram and half; Oyl of distill'd Mace, half a dram; Oyl of Wormwood, a dram: Mix them.

In the mean while, let the sick person forbear to drink too plentifully, and as soon as the Vomiting is stay'd, let him make use of some good Sudorifick.

Another Symptom of the Plague is a *great Flux* which is usually a sign that Death approacheth; but when the sick person hath not voided meer blood, nor any thing of a bloody substance, I have sometimes found these following Prescriptions to be successful.

Let him abstain from all things that are either acid or salt; which, except in this case, are of great use in the Plague; and likewise from drinking much: But if his thirst be so exceeding great, that he cannot bear it, let him take one, two or three spoonfuls of this following Mixture.

Take Tormentil-Roots, an ounce; Red Roses, a handful; Shavings of Harts-horn, a dram; Seeds of Sorrel and Mirtle, of each a dram: Boil them in Smiths water, and to nine ounces of the Liquor, add of the Confection of Hyacinth, a dram; Syrup of Mirtles, an ounce. Mix them.

Many have also from Treacle alone received great benefit by swallowing a little of it every four hours, till they have taken the quantity of a dram; as likewise from this following, taken by spoonfuls.

Take *Fracastorius* his *Diascordium*, two drams; Amber, half a scruple; red Coral prepared, Dragons blood, of each a scruple; prepared Pearls, half a scruple; Fennel-water, an ounce; Plantane and Rose-water, of each an ounce and half; Syrup of Comfrey of *Fernelius*, an ounce: Mix them.

Clysters of an astringent, drying and emollient quality, given twice or thrice in a day, have likewise in this case been found very necessary.

Take Roots of Comfrey the greater, an ounce; Bistort and Tormentil Roots, of each three drams; Oak-leaves, half a handful; Flowers of Balaustians, Red Roses, of each a pugil; Aniseeds, three drams: Boil them in Cows Milk that hath been burnt to, into 8 ounces of Liquor, dissolve of Venice Turpentine, two drams; one Yolk of an Egg, white Troches of *Rhasis*, a dram; Honey of Mercury, half an ounce; of Roses, an ounce: Make a Clyster.

The Bathing of the Belly with the Lees of white or rather of red Wine, and the applying to it afterward a warm cloth three or four times doubled, have

have by some been found to be of singular benefit, or else the Ointment and Plaister following may be made use of.

Take Oyl of Mastick, of exprest Nutmegs, of each a dram; Oyl of Dill, Wormwood, Myrtles, of each two drams; old Treacle, three drams: Mix them.

Take Bolearmenick, Frankincense, Mastick, Dragons-blood, of each two drams; Mummy, three drams; Powder of Galls, a dram and half; Seeds of Carots, Lovage, Anise, Myrtles, of each a scruple; Oyl of Nutmegs, by expression, three drams; Venice-Turpentine, as much as sufficeth to make it into a Plaister.

And thus much may suffice to have been spoken concerning the inward Symptoms of the Plague; the outward are three, the *Spots*, call'd *Petechie*, the *Bubo*, and the *Carbuncle*.

The *Spots* can hardly any other way be better removed than by inward Remedies, but they do usually portend some mischief.

The *Bubo*, I am wont to deal with after this manner following. At the first appearance of it, and although the swelling hath arrived to no considerable height, I draw a Blister, without making use of Cupping-glasses, which by reason that they cause a great deal of pain, and create a Fever, and draw unto them both the good and bad Humors, and cause a greater alteration than was before in the Blood, I do utterly lay aside: After seven or eight hours, cutting the Blister, I apply unto that Part a Magnetick Plaister of Arsenick; the virtue whereof is so great, that I know not any more excellent; which will appear to whomsoever shall
B b make

make use of it; the account of it out of *Hartman* and *Agricola*, is as followeth.

The Magnetick Arsenical Plaister.

Take Crude Antimony, yellow Brimstone,, white Arsenick, of each two ounces.

When you have beat them very small, let them be put into a Viol covered in Sand, to which you must apply fire till they are all melted, and appear to be of a dark red colour; when it is cool, it may be taken out of the Vessel, and this is that which they call the *Arsenical Magnet*, and hath not in it any thing of poyson, as it may be easily experimented upon Dogs afterwards.

Take *Gum Sagapenum*, *Ammoniacum*, *Galbanum*, of the *Arsenical Magnet*, of each three drams; Turpentine of the Larch-Tree, Wax, of each half an ounce; Oyl of Amber, two drams; Dulcified Earth of Vitriol, a dram.

Let the Gums be dissolved in the strongest Wine-Vinegar, and strained through a Linnen Cloth, let them after that be boiled up to their former consistence, then melt the Wax and the Turpentine together by themselves, and when you have taken them off from the fire, stir them well till you have brought them to the consistence of an Ointment; then add to them the Gums before-mentioned, and the *Arsenical Magnet*, together with the Earth of Vitriol, and Oyl of Amber, and you will have that plaister which is most effectual for drawing forth all sorts of Poyson.

I have found the Virtue of this Plaister to be such, that if it be applied to those parts where the
Skin

Skin is somewhat hard, it leaves not the least sign of a Scar, and yet doth so plentifully draw forth the malignant Humor, that a *Bubo* of the bigness of a Walnut, will in the space of five or six dayes be utterly taken away; but because it doth not alwayes so suddenly produce this Effect, it is often very necessary to raise a Blister for evacuation of the Humors. And it is observable, that in some strong Bodies it causeth no Escar at all, unless when the Blister hath corroded, not only the outward, but also the inward Skin. But in Children, and more tender Bodies, it will of it self cause an Escar, although there be no Blister drawn before the application of it.

This Escar or Crust is the true Seat of the Venom, which is extracted, and is of that thickness (especially considering that the Skin is but superficially corroded) that it is well worth our while to consider it. For I do believe that to be the reason why it is much sooner separated than other Crusts or Scars that are caused by Att; for in the space of 24 or 36 hours, if no Scarification hath preceded, it may be easily taken off without any, or at least with a very small pain, if you make use of any Antipestilential Plaister, and add unto it some Treacle, or *Unguentum Basilicum*, or else the severing of the Escar may be very much promoted by this Ointment.

Take Virgins-Honey, Ducks-grease, of each an ounce; Soot, six drams; Turpentine, an ounce; Yolks of two Eggs, Treacle, three drams; Oyl of Scorpions, as much as sufficeth to make it into an Ointment.

But if the Tumor is not sufficiently abated when the first Crust is taken off by the Arsenical

Magnetick Plaister, it is requisite that you create a second or third, and then proceed as before.

The Ulcer may be consolidated by a Plaister of *Minium*, of White Lead, *Diapompholigos*, or some such Remedy which drieth up the Humor, and bringeth the Ulcer to a Cicatrice: But we must observe this by the way, that this Consolidation is not to be wrought too suddenly, lest part of the poysonous Humor which still remains in the Body, should cause some new Disease, which may be fatal to the Patient.

For want of the Magnetick Plaister, you may make use of this following, if you take care first to raise a Blister, the virtue whereof hath been found to be very great by several, for the taking away of painful *Scrophula's*, and the excellent qualities that are in it, have made it famous by the name of

The Divine Plaister.

Take Gum *Galbanum*, an ounce; *Ammoniacum*, two drams; *Oppeponax*, three drams; yellow Wax, twenty ounces; Oyl of Olives, 24 ounces; Licharge of Gold, 17 ounces; *Olibanum*, two ounces; *Mirrhe*, *Frankincense*, of each ten drams; *Verdigreece*, long Birthwort, Mastick, of each an ounce; *Bdellium*, Loadstone, of each two ounces: Make it according to Art into a Plaister.

If the *Bubo* is too protuberant, or cleaves to the Tendon, a Vesicatory is too weak; but an actual Cautery is not so necessary: it will be therefore best to make use of a potential one, and among those several wherewith I have been acquainted, I know not any one that is more corrosive, and yet causeth less pain than this following,

Take

Take unslaked Lime, drachm 1 ; of black Sope as much as sufficeth: Mix them.

There are few which are not acquainted with such things as are useful for drawing of Blisters; among the rest, this Prescription following is to be commended.

Take, sowre Leaven, half an ounce; *Euphorbium*, Seeds of Staves-acre, of Mustard, Roots of Pellitory of Spain, of each a scruple and half; *Cantharides*, a dram and half; Strongest Wine-Vinegar, to make for a Blistering Paste.

If the pain be great, the following Poultice may be made use of, unless necessity require that the Chirurgeon should make use of a Caustery.

Take Leaves of *Scordium*, Rue, Hemlock, of each a handful; Camomile and Dill-flowers, of each a pugil; tops of Wormwood, two handfuls; Crums of Bread, two ounces; boil them in milk; adding to it of Eastern Saffron, half a dram; Yolks of two Eggs; Treacle, three drams: Make it into a Cataplasm.

The suppuration of a *Bubo* is very rare, the means necessary for it, are such as Chirurgeons are very well acquainted with, and are not, if Nature inclines to it, to be neglected. The *abscessus* in this case is to be opened, first by a Launcet, and not by the application of any Caustick; but the Ulcer that proceeds from hence, is very slowly healed.

None but such as are unskilful, make use of the Plaister of, Frogs and Mercury; for it dri-
veth the Venom inward, and threatneth much danger to the sick person; wherein we are confirmed both by the Writings of Ancient Authors, and by our own experience.

The Carbuncle.

Called by the Greeks *Anthrax* (for it is to no purpose to insert any nice distinction between them) shews it self in several shapes; but the Symptoms of it are many times very fallible: It is easie to conclude of it when ever it discovers it self by a little Push of a dark purple Colour, with an Inflammation round about it; but often appears with a white Push without any considerable prominency, which seems to contain a sort of purulent Matter that portends no mischief; but if you squeeze it, you will find it dry and very hard, and it eats very deep into the Skin underneath it.

Sometimes there appears one single Bladder filled with Limpid Matter, which if it be not opened in the space of 24 hours, it grows black, and upon its dissection sends forth two or three drops of black Blood.

Otherwhiles, several little white Blisters discover themselves. If these grow hard underneath, and are accompanied with a Fever and Inflammation, there is no question but that they are Malignant; and I know not why they may not be reckoned in the number of Carbuncles, especially since they are wont to dispatch a man in as short a time as the purple ones; and they are to be dealt with after the same manner, if we expect that our endeavours should succeed.

To the Cure of it, it is requisite that the Suppuration should with all diligence be promoted, and thereby the danger prevented of the Infection
dis-

dispersing it self. And for this purpose I have found nothing more effectual than an actual Caution; which hath also been approved of by several Chirurgions; but there are some who apprehending it to be too cruel a Remedy, do upon that account reject it, and choose rather a Potential Caustick, or some Medicines whereby Blisters may be raised: Both which I my self likewise have made use of, when it hath not been allowed that we should use other means, and when I have hoped that these might be sufficiently efficacious. For a Physitian is often constrained to comply with the Humor of such as are conversant about the sick Person, and will pretend to know much, although it be many times to the prejudice of his Patient.

They that approve not of any of the forementioned Remedies, may make use of the Magnetical Arsenick Plaister, which in this case we have found to be of great virtue.

For the separation of the Scar, those means which we mentioned in treating of the *Bubo*, are very necessary: Many have very much commended this following Poulrice.

Take Roots of Comfrey the greater dried, two drams; Marshmallow Roots dried, half an ounce; Leaves of *Scordium* dried, two drams; Meal of Linseed and Wheat, of each half an ounce; make them into fine Powder, poure upon them clean water as much as is sufficient; let them boil a little, that the Mucilages may be dissolved, and till it comes to the consistence of a thick Poulrice; then add of Honey, Turpentine, and *Ung. Apostolorum*, of each three drams; *Basilicon*, Tar, of each two drams; the Yolk of an Egg; Eastern Saffron, a scruple:

scruple: Mix, and if you please, you may add two drams of Treacle.

Preservatives against the **P L A G U E.**

IT is the Doctrine of the Devil to teach that the Use of all Means is to be neglected; who once spake to our Saviour, and endeavoured to perswade him to cast himself headlong from the top of the Temple, because they need no other security, whom God supporteth by his Mighty Hand: but he that hath given us Life and Health, requires that we should make use of some helps for the conservation of both; and therefore if you take my advice, I would wish you to observe these Rules following.

Amongst which, in the first place is challenged, and that deservedly, fervent *Prayer*.

Flight is very allowable to Christians, if it be consistent with their quality and condition of Life; but let those that make use of this, not depend too much upon it, but remember that it is not possible to fly beyond the reach of the Omnipotent.

And to take these Directions with them, *viz.* That they fly early, go far off, and be slack in their return.

When we go out into the Air, either by day
or

or night, we ought to take special care that it be clear and free from Vapours.

To which intent it hath been in such cases very useful, and found exceeding advantageous to keep good fires both in publick and private, since the Air is by nothing sooner nor more effectually purified.

It is also very necessary that the Houses be daily washed, which if it be done with Vinegar instead of Water, it is much better.

Things of a strong Odour, such as *Amber*, *Musk*, *Civet*, *Benjamin*, &c. do not only correct the Malignity, but attract the Venom to them, and have been found hurtful by experience, and are therefore consequently to be concluded so by reason.

It is useless and ridiculous to annoint the Nostrils with *Treacle* and *Mithridate*.

Those things which do really purifie the Air, are *Amber*, *Litch*, *Mirrhe*, *Frankincense*, the *Wood* and the *Berries of Juniper*, *Sulphur*, *Assa Foetida*, *Horn* (but especially *Gunpowder*) being either kindled, or put upon a few lighted Coals.

Such as take Tobacco, do very much commend the virtue of that Plant; I do not disapprove the use of it, though as much as I can, I avoid the Smoak.

An inordinate Diet is very hurtful at all seasons, but especially in a Pestilential one. There can be nothing prescribed in general which may agree with each man in particular; there is very much to be allowed to Custom, but we must at all times industriously avoid all Meats that are difficult to be concocted, and take great care that the Stomach be not overcharged.

For

For our Diet (*if we can so contrive it*) we ought to make choice of Veal, Mutton, Beef, Pallets, Capons, Peacocks, Larks, Chaffinches, Quails, Hares, Conies, &c. Perch, Pike, Whiting, Sole, Salmon, &c. Eggs, Butter, Green and Parmachese, Buttermilk; Cichory, Endive, Sorrel, Lettuce, Chervil, Parsley, Rosemary, Sharp-Apples, Quinces, Limons, Oranges, Capers, &c.

On the other side, Flesh and Fish which hath been dried and salted, are very hurtful; as Bacon, and Pork, Haddocks, Eels, Crabs, Shrimps, Green Fruit, and all things that are hard of Digestion.

Walnuts are very much commended, and not without good reason; for there may be very much use made of them: The green ones preserved, do much good to those that abound with Choler; but such as are come to their full ripeness, whether you take them fresh gathered, or when they are more dried, all that make use of them, will tell you that they are very pernicious.

The Strongest Beer, and Wine of a middle Strength, are very useful at such times, if moderately taken; but we cannot allow that any, except such as are very ancient, should dayly make use of strong and sweet Wines, nor of Spirit of Wine and Brandy.

Go not forth into the Air with an empty Stomach, but alwayes take some Preservative against Infection.

Take our Prophylactick Water, six ounces; Julep of Roses, three ounces: Mix them; take the quantity of a spoonful or two each morning.

Or,

Take our Prophylactick Conserve, three ounces,
take

take the quantity of a Chestnut in the morning, or as often as you are to go to an infected place.

Vinegar, and all sharp things have been commended to us by long experience; but they will not well agree with such as are troubled with a Cough, weakness of Stomach, or the Cholick, if they are taken either alone, or in too great a quantity.

I never had any great esteem for outward means, but those that can fancy it, many wear about their Neck this Amulet.

Take Arsenical Magnet, a dram; Benzoes, as much as is sufficient; make them into great rowls, and sew them up in red Lawn.

We have before described the Arsenical Magnet when we treated of the Bubo.

Sleep and Watching, exercise of the Body, and the use of Women, if immoderate, are very hurtful.

Costiveness is prejudicial, but not so much as a great looseness.

Sadness, Fear and Anger will make very strange alterations in the Blood; he who knows how to moderate those Passions, is most prudent.

Practical Observations.

I.

A Young Man aged twenty two years, being lately returned from the *East Indies*, on the 21 of *July*, 1655. in the Evening was suddenly taken with a great pain in his Head, and a shivering through his whole Body, having that day received much injury from the Water and Air; the day following he became exceedingly delirous, so that he could not by four men be kept in his Bed.

The *Plague* at that time raged very much in the next Town, which was very populous: but there had as yet appeared no Symptoms of it in this of ours: We met with no outward signs of any Malignity, nor did those within appear so considerable, as to forbid the breathing of a Vein, which the *Delirium* did very much press us upon: I therefore prescribed a Cordial Mixture, which might also be *Sudorifick*; whereof 2 spoonfuls was to be taken each quarter of an hour, and after the space of one hour a Vein to be opened in the right Arm, and seven ounces of Blood to be taken from thence: I had more than once before made trial of this Mixture in a *Pleurisie*, which was accompanied with Spots: The Description of it is as followeth,

Take Waters of Borage, Holy-Thistle, Bawm,
of

of each an ounce; Alexipharmick Water, an ounce and half; Cinamon-water, half an ounce; Confection of Alkermes without Amber-greece and Musk, a dram and half; Syrup of the juyce of Citrons, an ounce: Mix them.

The mixture was taken, and a Vein opened, and such things as we thought fitting applyed to the Temples, the Neck, and the Soals of the Feet, but all was not sufficient to overcome the Malignity of the Disease, for he dyed that night.

II.

A Man and his Wife on the 5th of July, were both taken with *Buboes* in their Groin; She was very drowsie, Feaverish, and Anxious, but by the use of *Sudorificks* and drawing Plaisters, she was by the 10th day following restored to perfect health. He was seized on by a pain in the Head, and a small *Delirium* which continued till the 5th day, on which he was taken with a great fit of Bleeding; which with some intermission continued for two days, this according to the opinion of all Practical Physicians was to be judged very dangerous. But when I considered that his strength was not at all hereby impaired, but on the otherside, the pain in the Head and the Feaver abated, nor did the *Bubo* strike inward; I cast away fear, and concluded that the Judgments of men by time and experience might be much corrected. I therefore thought it not the best course to continue here the use of *Sudorificks*, but rather to strengthen the Heart, and to incrassate the Blood, and thereby to stop the Flux of it. To which purpose I prescribed this which followeth, to be taken by a spoonful at a time.

Take

Take Water of Roses and Plantane, of each four ounces ; Cinamon-water, six drams ; Dragonis-Blood, red Coral prepared, of each a scruple ; Confection of Hyacinth, a dram ; Spirit of Salt, eight drops ; Syrup of Barberries, an ounce and half : Mix them.

Upon the taking of this, the *Bleeding* and the *Delirium* both ceased ; and thereupon the Patient grew well, the *Bubo* continuing for ten weeks after.

III.

A Maid on the 4th of September, was taken with a *Fever*, a pain at the Heart, and in the Head, and with a *Bubo*, which broke out about the inward part of the bending of the left Arm, and seized on the Tendon of the Muscle *Biceps* ; from hence proceeded a very acute pain, not only in that part where the *Bubo* appeared, but also about the Arms by consent of parts, although there was no swelling, which thereabouts appeared. I gave her this *Sudorifick* forthwith.

Take *Diascordium* of *Fracastorius*, four scruples ; *Sal Prunella*, a scruple ; Alexipharmick-water, an ounce and half ; and Holy-Thistle-water, as much as is sufficient ; Syrup of Limons, half an ounce : Mix it for a draught.

To the *Bubo* I applied the *Divine Plaister*.

The Sweat came plentifully, but the pain of her Arm, a *Delirium*, and continual watchings, after the use of several other things, forced us to use this *Landanum Opiat*.

Take Bawm-water, an ounce ; Holy-Thistle-water, an ounce and half ; Alexipharmick-water, an ounce ; Confection of Hyacinth, a dram ; Julep of Roses, ten drams ; *Landanum Opiat*, two grains : Mix them.

Of

Of this she took every half hour one or two spoonfuls; and although it caused Sweat, yet it procured no Sleep. The Chirurgeon for variety, made use of his *Pestilential Plaster*; but neither was the pain hereby remitted: we were therefore forced at length to apply this following to break it.

Take of unslack'd Lime, of Black-Sope, as much as sufficeth.

By the help whereof the *Fever* very much abated, though the pain continued as before; but yet in the space of ten or twelve dayes it utterly left her; but the *Bubo* remained open for six weeks after, for the whole Glandule was consumed by the Ulcer, and some part of it which was corrupted, was necessarily to be separated from the other. In the mean while, we had great cause to fear that the putrefaction had pierced deeper, because the Ulcer was deep, and the sides of it callous, and a serous matter came from it; but by the blessing of God the Cure succeeded according to our wish.

IV.

A Bookseller in *May* was very much troubled with two Biles, whereof one broke out on his Buttock, the other on the *Scrotum*. To remove the Cause hereof, and to abate the Tumor, I prescribed this following Laxative Apozem to be taken two or three dayes together.

Take Tamarinds, an ounce; Cream of Tartar, two drams; Senna, six drams; Rhubarb, two drams and an half; Aniseeds, a dram and half; boil them in Whey, and to a pint of the strained Liquor, add two ounces of Syrup of Succory with Rhubarb: Make it into an Apozem.

Cc

To

To the Swelling I applied the Plaister *Diachylon* with Gums, by the means whereof they were wholly removed.

The same person the 26th of *August* (at which time the Plague raged here very much) was taken with a *Bubo* in his Groin, which, when after inquisition made (that I might satisfy the curiosity of him and his Wife) I had declared to be Pestilential, it was strange to see what terrour seized upon them both, but I quickly caused them to chear up again, by letting them know that the Life was not at all in danger; for the Man in all other respects was very well, he eat, drank, and slept well, had no Fever, nor pain at his Heart; nevertheless I gave him *Sudorificks* more than once; and the Chirurgeon drew a Blister, and afterwards applied Plaisters and drawing Poulices, whereby in the space of four weeks the *Bubo* was wholly dissipated without any Suppuration.

V.

A young *Emdener* of twenty six years old, on the 12th of *August*, fell into a continual Fever, accompanied with drowsiness, trembling of the Lips, blackness and driness of the Tongue, all malignant signs; but I restored him again by the 30th of the same Month: to effect which, I prescribed him a *Sudorifick*, Morning and Evening, and for his ordinary Drink, this Julep.

Take Holy-Thistle-water, a pint; *Alexipharmick*-water, two ounces; Julep of Roses, 2 ounces and half; Spirit of Salt, eight drops: Mix them.

On the third day there was Spots discovered all over his Body, nor was his drowsiness or the trembling of his Lips abated, but he vomited not at all. I gave him this *Sudorifick*.

Take

Take Salt of *Scordium*, of Holy-Thistle, of each a scruple; Antimony Diaphoretick, half a scruple; Crabs-Eyes bruised, twelve grains; our Prophylactick water, Mint-water, and Syrup of the juyce of Holy-Thistle, of each an ounce: Mix it for a Draught.

By the use hereof the Fever abated very much, and on the eighth day I found that he had a Thrush, for the separation whereof, I prescribed this Mixture to be taken by spoonfuls.

Take the juyce of the greater Houfleeck, half an ounce; Water of Self-heal, of Purslane, of each an ounce and half; the yolk of one Egg, Syrup of Violets compound, six drams: Mix them,

This being twice or thrice reiterated, and making use at the same time of a Lohoch of the Syrup of Purslane and Violets, by means hereof the Thrush was removed, and the Fever cured without either Purgings or letting Blood.

VI.

I was sent for on the 18th of *August* to a Woman great with child, which was taken with a great drowsiness, and had a Pestilential *Bub* broke forth in her Groin, but she had scarcely any Fever, her Eyes looked well, and her Tongue was moist, and she seemed very hearty-whole, she had now gone seven months, &c on the night following she was delivered, which I concluded to be a certain sign of Death, and found it true; for on the next day about ten of the Clock she departed.

The Husband of this Woman told me the same day, he was delirious, his Eyes sparkled, his Tongue was dry, all which I noted for very ill

signs, his Fever was but small, but the pain at his Heart very great, his Urine like that of men well in health. After having taken two Sudorificks, he began to come to himself, his Tongue was observed to be moist, and a *Bubo* appeared in his Groin, and a Carbuncle on his Back, which on the next day had three or four more joyned to it. These Symptoms promised good success, but it happened otherwise; for as soon as he saw his Wife dead, he was so altered, that the *Bubo* striking inward, and the Sweat stopping, the third day after he died.

An old Woman related to him, had a Carbuncle without a Fever, and by our usual way of proceeding, was cured in nine dayes.

VII.

A Midwife which went trembling and unsteady, gave me occasion from thence to suspect some extraordinary weakness in her, or a *Delirium*; nor was I mistaken; for when I came to feel how languidly her Pulse beat, I found it evident; but yet I could discover no outward Symptom: nevertheless the driness of the Tongue, the difficulty of Breathing, and such other signs did discover that some Malignity was concealed within; at length upon enquiry, she told us that she had a puch upon her right Thigh, which, upon search, we found to be a Carbuncle of the breadth of a Shilling. She would not grant that she had any *Bubo* in her Groin (which nevertheless I doubted not of) nor suffer the Chirurgion to search. He gave her what was requisite to be applied outwardly, and I prescribed her a Sudorifick, after two dayes she recovered her strength, and be-

came

came of a right mind, and the third day seemed to be perfectly well; but on the Evening of that day all was changed, she became restless and almost distracted, and died that night.

She had taken before I was sent for, *Manna* with *Cream of Tartar*, and after that, *Tamarinds*, all which doing no good, but the Disease still encreasing upon her, she conjecturing that there was some Malignity in it, took an ounce of *Plague-Water*; which, though it were much weaker than the Malignity required, yet she took it for two dayes by my advice; but on the third (whatsoever I perswaded to the contrary) she changed all her Linnen, even to her Head-cloaths, and drank Whey in which *Tamarinds* had been boiled, from whence proceeded her sudden change for the worse, and upon that her Death; and these are the effects of self-conceitedness.

VIII.

Helena van Wyngaerden, a Servant of mine, on the first day had some slight Symptoms of the Disease, the next she was taken with Vomiting, a pain in the Head, and at her Heart, especially when she endeavoured to rise from her Bed, her Eyes look'd red, but her Tongue was well enough, and her Fever was but small; a few dayes before, without my knowledge, she had been at an house that was visited; I gave her presently a *Sudorifick*; whereupon, the third day after a *Bubo* appeared in the left Groin; I continued the use of *Sudorificks*, and the Chirurgeon took care of the *Bubo*, by which means, within a fortnight she perfectly recovered, and went again about her business.

IX.

IX.

The Daughter of *N. Domer*, on the second of September, complained of a great pain in her head, and at her Heart, and her Tongue grew black and dry. The first and second day we put her into a Sweat, and on the third, she told us that she was perfectly well; her Tongue became moist, her Pain, her Fever and Anxiety left her; nevertheless I perswaded her to continue the *Sudorifics*, but she arose and ate and drank, went abroad, and after that slept well all night; but in the morning the former Symptoms returned, and in the evening of the same day there appeared Spots, and the next morning she died.

X.

N. N. had lain very ill for six dayes, at what time I was sent for to him on the twentieth of August, he began to be light-headed, his Tongue became black and dry, and he had a great anxiety at his Heart; his Eyes were fixed, his Hands trembled, and a great Carbuncle discovered itself on his Cheek, whose Tail reached to his very Chin, which was also hard and much swelled. It seem'd to threaten a much greater increase; for it was very dry, and much inflamed, and not circumscribed within any bounds. To this was added a pain in the Throat (which Symptom I conjectured to be mortal) and a very intense Fever. This desperate case put us in mind of desperate Remedies; wherefore being guided by my own Reason and Experience, and perswaded by the

the Authority of the most Eminent Physicians, both Ancient and Modern, I boldly recommended to him an actual Caustery, which was presently applied by the Chirurgion, without any great pain to the Patient: This Operation was perform'd in the Morning at ten of the Clock, and between four and five in the Afternoon it appear'd purulent, and the Crust began to be separated, nor did the Core of it creep any further; all which Effects, I know not from what means they could have been expected besides this. In the mean while he sweat plentifully, and all things gave his Friends to hope that he would again recover; but I was of another mind, as knowing well the nature of this treacherous Disease. The same Evening he took another *Sudorifick*, and slept quietly enough all night. On the one and twentieth day the Cheek that was affected, discovered on it some moisture, the Fever continued as it was: Between his fore-finger and his middle one there brake forth a very painful Carbuncle, which affected the whole Arm. To this there was applied another actual Caustery without any great alteration discerned in the Patient; then we prescribed him a Julep which might cause Sweat, and some food that was nourishing, but no Sweat appear'd, and the affected places being drier than the rest, fore-boded an ill event. At Nine in the Morning another Chirurgion was sent for, who approved of whatsoever we had done in this case; at midnight he fell into an high *Delirium*, so that he could not be held in his Bed by those which attended; about morning he betook himself to rest, and in one hour after departed: Some of his Friends accused me of being negligent,

which ingratitude I can the better bear, since I am conscious to my self, and give thanks to God for it, that I omitted nothing which the Rules of Art required to be done.

XI.

The Wife of *Cornelius Janson* being fifty years old, was after she had been sick two dayes, troubled with a *Bubo* in her Groin, and a great anxiety of Heart; but the Feaver was but small: Her Eyes (which I do much observe in all sick persons) look'd very well, as soon as she sweat, she began to confess her self better, her anxiety was presently removed, and her Fever also after few dayes: The *Bubo* (a Blister being first drawn) was dressed by a Chirurgeon with the *Magnetical Arsenick Plaister*: She fell sick on the eighteenth of September, and her Son on the twenty third, who was taken with a pain in his Head, and refusing all Medicines, died within three dayes, but she recovered.

XII.

Everard Tessalear, a Vintner, was taken on the 2^d of September, with a chilness all over him, and then with a very great heat, his anxiety was great, and his breathing difficult, accompanied with nauseating, a pain in the Head, a trembling of the Hands, a burning of the Eyes, and an intolerable pain on the right side of the Groin, yet without an apparent swelling. I gave in my Opinion that he was taken with a Pestilential Fever, and prescribed some Remedies for that purpose; after the first Sudorifick, the pain in the

the Head and Groin abated, and the Vomiting was stopped; after the second, the pain became tolerable; and by the fourth, it was wholly taken away, and the Fever cured: Being so suddenly restored, he believed not that there was any Malignity in it, and went abroad forthwith; which I did very much disallow, accusing him of unthankfulness to God, and foretelling that he was to suffer somewhat more severe, because I could easily perceive his Health and Strength not to be confirmed, and that there was need of a further course of Physick to settle it. He still refused to hearken to me, till on the day following he was attacked by the same Enemy, and his Wife also; he first complained of a pain in his Groin, and then of a *Bubo*, which Symptoms confirmed the truth of what I had foretold, and caused him to repent when it was too late: The fear of Death made him now desirous of repeating the *Sudorifics*, by means whereof, through the Divine assistance, they were both cured in nine dayes, though the *Bubo* continued on the Woman for a Month after.

XIII.

Albert N. on the second of *October*, was taken with a great pain at the Heart, his Pulse was not to be discerned by a gentle touch, his Countenance was like one in an Agony, he was extream prone to Vomit and to Sleep; but he was pretty well in his Senses, his Eyes were not inflamed, his Tongue moist, the Fever but small, and the Thirst not great: The Vomiting was presently relieved by the use of those things

things which we have mentioned in their proper place; but the Sweat came but slowly: whereupon I gave him the next day a more powerful *Sudorifick*, whereof we found very notable effects, but his thirst by that means being increased, made him drink a great quantity of Beer, whereby the vomiting returned, and because he complained of a pain in his Belly, we were afraid of a *Diarrhea*; wherefore instead of Beer, we gave him this following Mixture by Spoonfuls.

Take Rose-water, two ounces; Holy-Thistle-water, four ounces; Mint-water, an ounce; Cinnamon-water, three drams; our Prophylactick-Water, an ounce and half; Syrup of Myrtles, two ounces: Mix them.

And in the Evening he took this *Sudorifick*.

Take Confection of Hyacinth, a scruple; Treacle, *Diascordium*, of each two scruples; Salt of Coral, fifteen grains; our Prophylactick-Water, ten drams: Mix it for a draught.

The night after passed quietly, the Vomiting ceased; the third day after there was a Carbuncle discovered on the inside of the left Nostril: We applied to it our Divine Plaister, and inwardly we gave *Sudorificks*, and such things as might refrigerate; on the fourth day his Nose was observed to be cold, and to look of a purple colour, the Carbuncle extending it self to the *Processus Alami-formis*; the Pulse beat low and unequal, nevertheless he took another *Sudorifick*, but without success; for about Noon many mortal Signs discovered themselves; and although he was all along of a sound mind, yet after two hours he departed.

XIV.

The Wife of John N. Chirurgion, in September was suddenly taken with a Fever, with drowziness and anxiety of heart. I prescribed this Sudorifick.

Take *Diascordium* of *Fracaſtorius*, a dram; Confection of Hyacinth, *Lapis Prunella*, Salt of *Scordium*, of each a scruple; our Prophylactick Water, an ounce; Betony Water, as much as ſufficieth; Syrup of the juyce of Holy-Thistle, half an ounce: Mix it for a draught.

It produced no Sweat, which was an ill Omen: The next day therefore ſhe took this, which is ſomewhat ſtronger.

Take Treacle, *Diascordium*, of each a dram and half; our Prophylactick Water, an ounce and half; Salt of Holy-Thistle, a scruple; Syrup of Limons, ſix drams: Mix it for a Potion.

And this alſo effected nothing: For variety-ſake, in the Evening I gave her this following.

Take Salt of Wormwood, *Scordium*, *Prunella*, Antimony Diaphoretick, of each a scruple; Syrup of the Juice of Holy-Thistle, an ounce; Our Prophylactick Water, two ounces: Mix it for a Draught.

By the help whereof ſhe began to ſweat, and the Fever to abate, together with the anxiety; but the third day after the Spots appear'd, which carried her off immediately.

Her Husband, after eight dayes, beginning to viſit his Patients again, came about eight in the morning to one that was ſick, when ſitting down on a Stool, he was ſuddenly ſo taken, that he could

not rise again; about Noon, by the help of his Son and his Man, he went home, where taking his Bed, he was presently seized with a great drowsiness, which I call'd a *Coma*; because whatever I did or said to him, I could not get two words from him; I presently prescribed him a Clyster, and this Ointment for his Head.

Take Oyl of Marjoram, a scruple; Oyl of Rue, a dram; of Amber rectified, a scruple; Rosemary, half a scruple: Mix them.

I advis'd also that they should endeavour to make him sneeze by putting Tobacco to his Nose, and give him inwardly some of this Mixture.

Take Anti-Epileptick Water, of our Prophylactick Water, of Berony and Rosewater, Syrup of *Stæchas*, of each an ounce.

The Clyster came from him without any effect, and Tobacco did no good; he took a little of the Mixture; and about Evening I prescribed him another Clyster, and this sneezing Powder following was blown up his Nostrils with a Quill.

Take the flower of Lillies of the Valley, Leaves of Marjoram, of each half a scruple; white Hellebore, three grains: Make them into fine Powder.

By the help hereof he sneezed 3 or 4 times, and a purulent Matter came from him at his Mouth, but a greater quantity of it went down his Throat; besides which, there remained a great deal of it in his Mouth, which we could easily squeeze forth by pressing his Cheeks. These were sufficient signs of an *Abscessus* in the Brain, and consequently of certain Death, especially when we could not perceive that his Senses returned to him,

him, not that he was any other way reliev'd, but on the contrary, his voice quite failed him, and he began to rattle in the Throat ; nor was I deceived in my conjecture ; for in a short space he died.

Four of his Children, and a Maid-servant followed him ; his Man was cured of a *Bubo* under his Arm-pit by drawing a Blister, and by applying some drawing Medicines. His eldest Daughter and youngest Son still survived : He had a Fever, but was not very sick ; but she was handled more severely : She had a Thrush appeared on the eighth day, which took off not only the Fever, but the whole Disease ; and thus of ten in Family, but three escaped. You have here an account of the true Signs and Effects of Malignity, which none but such as are possess'd with the Spirit of contradiction, can deny to be Contagious.

POST-

POST-SCRIPT.

I Intended to have published at least forty of these Observations, but being taken up with giving an account of other things which will conduce very much to the illustrating of our Art (which in their due time may be made publick) I could make no further progress in this: Make use of these for the benefit of your Friends, and, if you desire to see them, put us in mind of the other.

FINIS.



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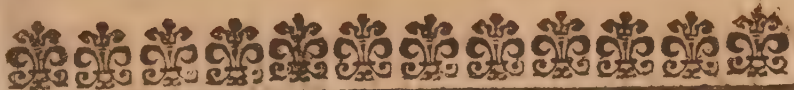
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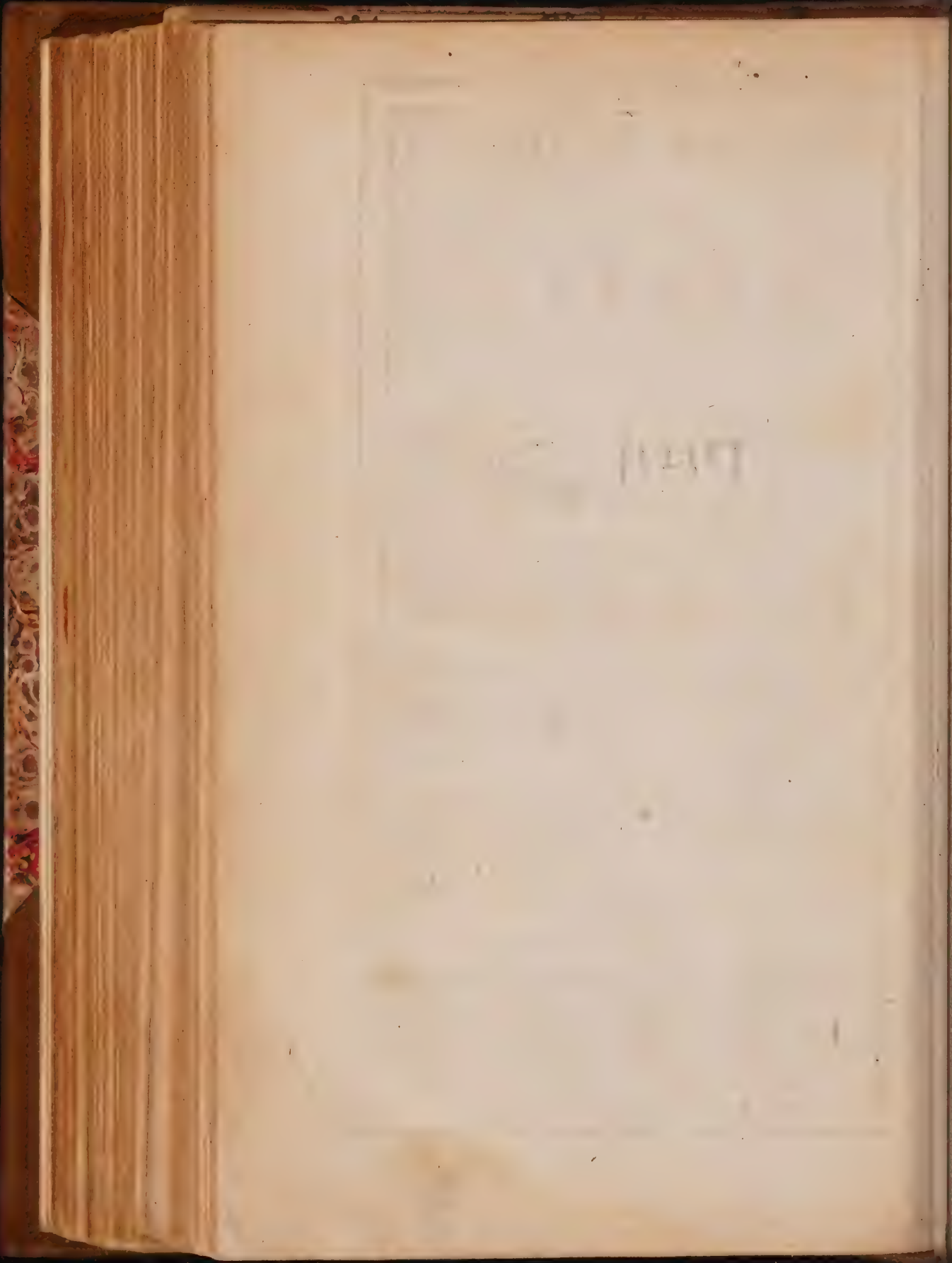
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science, which may inspire him with true Fortitude, undisturbed from the troubles and anxieties accompanying Impiety and Injustice. To this end, he ought, in the first place, be constant in paying his Duties to Almighty God, by serving Him in publick and private, by imploring the Divine protection and blessing in all his Just undertakings, and by returning his humble acknowledgments for every good success. Next, he ought to serve his Prince faithfully to the best of his skill and power, to obey his Officers readily, and to do to all others, as he would be done to, if he were in their condition.

CHAP. II.

what care a Souldier is to take of his Body.

THe Mind being thus taken care of, thou art to advise with a skilful Physician concerning thy Body, whether it be not necessary to purge it, the

Medicines Experimented. 3

the better to secure thy self from Agues and Fevers. Then furnish thy self with some Mithridate or Treacle, to use it against infection; taking of it in the morning fasting, against the ill Air, the quantity of a hasel-nut. Take also with thee a quantity of Zedoary, *Angelica*, *Imperatoria* or *Masterwort*, and *Carlina*; of which thou shalt do well, now and then to eat some for the preservation of thy strength, and against the corruption of the Air. But especially keep thy Head and Feet warm, by the neglect of which thou maist cast thy self into great danger. Take heed of furcharging thy stomach, which is to prepare and to convey the nourishment for the whole body, and restrain as much as thou canst thy appetite, there being nothing more hurtful to health, than when that is irregular and extravagant.

Gird thy self well, that thy body may be close, and so be secured from receiving mischief in leaping, falling, storming, &c. and thy bowels

4 A Body of Military

from being put out of their place..

Take also with thee out of the Apothecary's shop a powder, called *Pulvis solutivus de Tribus*, which is not dear. Of this, when thou needest purging, take the weight of a *ducat* or a little more, according to thy constitution, in warm flesh-broath or the like, early in the morning fasting; so ordering the matter, that that day thou maist keep thy self warm in thy quarter. Fast two hours after the taking of it, and then eat warm meat. The same may be done with *Pulvis Senae Montagnana*, and *Pulvis solutivus de Tartaro*.

If thou be troubled with *Corns* on thy feet, apply to them every day fresh lard, and continue this, till by the fatness of the lard they grow soft; and then they will fall off from the very roots without pain.

To free or secure thy self from *Vermin*, take a good quantity of Wormwood, and the inner cuttings of horse-hoofs, cut out by the Farriers when they shooe horses; boyl these both together.

Medicines Experimented. 5

gether in half lye and half water, and to put thy shirt into it, and afterwards dry it in the Air, without washing it out any other way, and not a lowse will come into it. This Experiment is found approved amongst the old *German* Souldiers; and although there should be a lowse in thy shirt, it would not stay there.

If thy feet be moist and sweaty, (which is very troublesome not only to thy self, but to others also,) take the filings of Brass, which are sometimes used for dust to dry moist writings with, and put some of it into thy socks, and walk upon it. Refresh this every other or third day, and thou shalt soon be freed of that inconvenience: Nor be thou troubled, that it makes, as it will do, thy feet look greenish; for there is no hurt at all in that, since you are not like to put them in your cap.

Take also with thee some Stags or Bucks-grease, to make use of in case thou shouldst be galled any where in riding, or going on foot. Anoint the part therewith at the fire-side, and it will soon be healed. B 3 To

To prevent Rust, draw thy Sword through the fat of a Goose or Capon, or grease thy Arms therewith.

Take care to have always about thee a hard crust of Rye-bread; for if thou art dry, and destitute of water, wine, or beer, to quench thy thirst, chew some of this dry crust, and it will moisten thy mouth, and considerably abate thy thirst. The same may be done with a Leaden-bullet, rolled to and fro in the mouth, Lead being cooling.

It hath been prescribed above, to take with thee the Herbs *Imperatoria* and *Carlina*. Of this be mindful; for if it should happen, that thou shouldst be obliged to stand some hours in battle or in the field, take a piece of it in thy mouth for hunger, thirst, and refreshment, and thou shalt find, it will keep thee a good while from faintness. But woe to thy fellows, if they want it; for they will certainly faint, unless thou be so kind as to give them a share in thy provision.

In the best Apothecary-shops may
be

Medicines Experimented. 7

be found a root, called *Costus*, somewhat like Cinnamon; which hath the same effect. And if others should eat Onions, others drink Brandy, and I only hold in my mouth of this root the bigness of half a pea; I should keep in breath a good while longer than they. But take notice, that this, I speak of, is not the common *Costus*, which hitherto hath been sold for the true in common shops; but that which comes to us from the *Indies*.

If thou art a Horse-man, take a good quantity of Bay-salt, a little Brimstone, Clove, and Ginger, and mingle with it some of the powder of the two above-said herbs, *Imperatoria* and *Carlina*, and give it to thy Horse, or in case of want of Provender let him have of it upon his bitt, or give him some upon a slice of bread, and it will make him strong and vigorous.

If thou art to ride in a *German* Saddle, the two hind-knobs whereof are wont only to be stuffed out with straw or horse-hair; get thee made two Tin-flaskes with good screws, fitted

for those places. In one of them carry Brandy, in the other Vinegar. The Brandy will serve thee in cold nights, and fresh mornings; and 'twill be good also for thy horse, giving him a little of it upon bread. The Vinegar will be of use to thee for the heat of the day, washing thy mouth with it, as also spirting a little of it into thy horses mouth. Besides, mingling it with water, it will afford thee a good cooling drink.

If it be very cold, put some of that horse-hair, that is wont to be curried out of their mains and tails, into thy boots. I never received on such occasions more warmth from any thing, especially keeping my self dry. A Hares-skin is also good for this purpose, making socks of it; but if it grow wet, 'tis naught.

Gather of the Wheel-grease that runs out at the nave of the Wheels, and would else be lost, which hath taken in some of the substance of the Iron that is about the Axel-tree, witness its blackness: This is a good Ointment for Horses.

When

Medicines Experimented. 9

When thou comest into the field, and art to lye abroad, look out for some rising ground, that the Rain, which may possibly fall, may run away from thee: And avoid as much as is possible, Vallies, Marishes, Ditches, Meadows, and the like low and moist places.

Besides, observe the *Air*, and put up thy Tent towards the East; which quarter though it be cool, yet 'tis wholsom. But lest it should be too cool, order it so, that thou mayst enjoy that wind, which comes from between the East and South, as being one of the wholsomest of all *Airs*, and temperate, the South-air qualifying the sharpness of the Eastern. Beware of the Western Wind, especially that which blows from between the South and West. The Air of Mid-night is wholesome enough and dry, but sharp and piercing. Believe it, a Souldier is much concern'd in the Air; nor hath *Hippocrates* without cause written a whole Book *De Aere, Aquis & Locis*, to teach, how the Air, Water, and
Places

Places are to be discerned and chosen.

Moreover, look about thee for good cleer *water*, such as grows warm and cool again sooner than other waters; and observe this mark for my sake. I know water, that will not boyle Pease, Vetches, Stock-fish, Flounders, &c. In some Springs Iron is turn'd into Brass, and great care is to be had in the choice of water for drinking.

But if thou canst not have Spring-water, but art necessitated to use Pit- or Ditch-water; have a care not to drink it without straining, least thou shouldst swallow Frog or Snake-spawn. For I have known and had in my cure a Countrey-man, who voided, though not at once but at different times, two hundred fifty and five Frogs, and of them many in my own house, in the presence of divers Ecclesiastical and Secular Persons; and some of the biggest of them, being dried, are still to be seen in the Repository of *Mantua*, as also in that of *Mr. Philip Hainhofer* at *Auspurg*. And there

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there is a Cook in the Hospital of *Wessenburg* or *Landsberg*, who, (as appeared by the event) had drunk the Spawn of Serpents, out of which were bred divers Serpents in his body, some of which he voided by virtue of the Medicine he took, amongst which there was one of the length of a *Bavarian* Ell. The Man hath been since in good health, and continues in his service to this day.

Wherefore it will behoove you to spread your handkerchief over the Ditch-water, and so drink through it; or if you take any of it up unstrain'd, quench first a red-hot Stone or Iron in it, whereby the noxious quality will be destroyed. Or, if you lye still, and can get any Oyl of *Vi-triol*, let some drops of that fall into it, and you need not then fear any corruption or poyson in such water. Otherwise, if time will permit, let it boil up and cool again, and put a crust of bread into it, and you may drink of it safely.

Those Waters that run out of stony hills

hills and from under rocks, are the best; to which may be reckon'd those Springs, that flow from high places, and purge themselves in clear sand and pebles.

If thou meet with Beer or Wine, take heed of excess; and forbear drinking New beer that hath not yet done working, or is not some days old, because new beer causeth the *Strangury*. And in case *this* should trouble thee, take a handful of Hay-blossoms, boyl them in water, and Urine over it, drawing into thy body the warm steam thereof, and anointing thy Navel several times with warm suet.

If thou art hot, and canst not forbear drinking, make water first; then wash thy mouth, and cool the arteries on both thy temples, and those of both thy wrists; and then drinking will hurt thee less.

If you chance to drink whilst you are hot, (which is so dangerous a thing, that some have dyed within 24 hours after it; others have fallen into consumptive Coughs, others been troubled

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bled with Pains in their sides and with Impostumes, &c.) then take of the leaves of *Bellis* or *Daisy*, which grows in all meadows and pasture-grounds, and is green both winter and summer, and wash them clean, and dress them like a Salad with Oyl, Vinegar and a little Salt, and forthwith eat thereof; and it helps immediately, as I know by much Experience. But this must be used presently, the sooner the better. I can say with truth, that in all my Practice of Physick for above 20 years I have not met with any Experiment of so quick an Operation from any herb, as from this. But here I must note, that I have always used the *Red Daisy*, and have not tryed the other sorts; though I am apt to believe, the others may have the like effect. You must not eat the Flowers, but only the Leaves. This Experiment should be put up on all posts every where, for the good of Courriers, Mowers, and other labouring Men, that are wont to drink plentifully when they are hot, and thereby spoil themselves in great numbers.

But

But to proceed, as thou art to beware of excess of drinking at all times, so thou art especially to forbear when thou art to stand Sentinel, lest thou shouldst fall a sleep; whereby thou mayst lose thy life, at least, thy place and thy preferment for ever.

Neither be fond of Gaming at dice, tables, &c. whence are occasioned quarrels, mistrusts, deceit, swearing, and what not?

Avoid also the company of base women, lest thou shouldst be constrained to undergo the Mercurial Salivation, and with it a very lean Diet, of thin broth, water-gruel, barley-broth, prunes, roasted apples, and such like, without any flesh-meat at all.

CHAP. III.

Concerning the Physicians and Chirurgions in an Army.

EVery Army ought to be well provided with one or more able Physicians,

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ficians, such as are not only expert in the cure of inward Diseases, but also understanding in outward Cases, as Wounds, Burnings, Luxations, Dislocations, *Erysipelas's* or St. *Antony's* Fires, &c.

These Physicians ought to be no Youngsters, that are lately come from Schools and Universities, knowing only in Controversies and Disputations, but such as are expert in the Cure of Diseases, especially such as are most frequent in Armies. They are also to be Men of good nature, great honesty and condescension, willing to take pains with the poor as well as the rich. Physicians thus qualified may so gain the hearts of the Souldiers, that these will love and honour them as if they were their Parents.

Likewise the Chirurgions ought to be learn'd, discreet, and affable, such as have been long vers'd, and experienc'd, in all the operations of Chirurgery, that can distinguish well of Diseases, and with prudence make their

their judgments thereon : They ought also to be diligent, and careful of those committed to their charge, and very knowing in all manner of outward applications, as Unguents, Plasters, Pulments, Lenitives, Stiptiques, Attractives, Digestives, Causticks, Escharotiques, as also their Mollifying, Dissipating, Repelling, Suppurating and Mundifying, &c. Medicines. They ought to be skilful in discerning them, and withal in knowing well the cases and times where and when to use them. They are to be very careful in observing the beginning, middle and end of Ulcers, Wounds, &c. since it often may be impertinent and even hurtful too, to use that in the beginning, that may be pertinent and beneficial in the midst of the cure, and the like.

An able and dextrous Chirurgeon is a great Treasure in an Army, and cannot be enough valued, especially if he consult in all dangerous cases with an understanding Physitian.

These two, Physitians and Chirurgeons,

gions, are to be intimate friends together, assisting one another without envy and pride, for the better relief and the greater safety of their Patients.

'Tis very necessary, both these should go abroad and travel before they undertake to practise, thereby to acquire experience, and to learn also to converse with the more discretion and gentleness with all sorts of humors. And when they come to practise, the Chirurgions ought to advise with Physitians, who are but lame Doctors, if they be not skilled in Chirurgery; since this is the third part of Physick, from which it can and ought not to be separated, being an integral part thereof. It is recorded in history, that above 2000 years since, *Podalyrius* and *Machaon*, Sons to *Asculapius*, went both with *Agamemnon* in the Expedition for *Troja*, and there purchased great honour by their practise not so much of Physick as Chirurgery.

CHAP. IV.

Of Fevers, Hungarian Distempers, Spotted Fevers, and other Pestilential Diseases, as also of Hereditary Maladies, together with their Remedies.

TIs known seldom to fail, that in an Army there reigneth some Disease or other, according to the nature and constitution of the Country, Air, and Diet. The reasons are;

First, that amongst so great a number of Men, raised from so many different places, there are to be found Men of very different tempers and constitutions, sound and unsound; and amongst the latter, some that are scabby, others scorbutical, others labouring under venereal Diseases, many inclined to dangerous and infectious Fevers, &c. all which a Physician must have a watchful eye upon, and endeavour to prevent their spreading.

Secondly,

Secondly, that Souldiers in an Army want conveniences wherewith to take due care of their health; but are often constrain'd to expose themselves and sleep in the open Air on moist ground, the vapours whereof penetrate into their bodies; and they are careless or want opportunities of expelling them out again by sweat. Whence is caused an inward putrefaction in the blood and humors, which sometimes proceeds so far, as to assume a venomous nature, and to break out into spots, tumors, bubo's, carbuncles, &c.

Thirdly, that Souldiers commonly keep an irregular diet. Sometimes they have plenty and do super-abound; at other times they have nothing; and then being very hungry, when they come again to a place of plenty, they overfeed and surfet; whence are bred crudities in the stomach, and corruption, which causeth malignant Fevers in abundance. Besides, they often feed upon meat that is unwholesome, as stinking Venison, rotten cheese, musty

bread, &c. which cannot but occasion many Diseases. And when they come to places, where Fruit abounds, as Apples, Pears, Plums, Melons, Cherries, Grapes, &c. they over-eat themselves, and thereby cause Gripings in the Guts, *Diarrhaeas*, &c.

Lastly, sometimes the Air is corrupted, especially after a great battel, and slaughter of Men that remain unburied; whereby the Air being tainted infects the living that take it in. Which is often made worse by the exhalations of low and moorish ground, and by thick fogs.

These are the general Causes of the common Distempers reigning in Armies; against which thou art to arm thy self accordingly. First then be careful in thy Diet; eat not greedily and indiscreetly every thing that comes to hand; and though it be good, yet eat and drink not too plentifully of it, but restrain thy appetite, considering how destructive every excess may be to thy health.

If thou canst and hast no aversion
from

from it, drink every morning of thy own *Urine*, which prevents corruption in the Stomach, opens obstructions in the Liver, Spleen, Mesaraic Veins; which if not removed, there will follow Fevers, the yellow Jaundice, Swellings, and Difficulty of breathing. If thou art averse from doing so, eat some bread and butter with rue on it; or, if it be not hot weather, take in the morning the quantity of a hasel-nut of Mithridate or Treacle; or infuse in brandy, or rather in Spirit of *Juniper-berries*, some *Zedoary*, *Angelica*, and a little *Citron-peels*, and drink a spoonful of it in the morning.

When the Air is corrupted, and there be at hand a Goat, rub thy self at him, and let not the strong smell keep thee from it. Also put Quicksilver in an empty hasel-nut, closed up with *Spanish Wax*, and hang it about thy neck; or the *Zenechton* prepared of *Arsenic*, (after the manner by and by to be described,) sowed up in thin leather; for if it should touch the bare skin, it would cause

blisters and do harm. This *Zenech-ton* is a plaister, out of which are cut pieces of the bigness of a dollar, which are carried about the neck, and hang down near the heart; keeping good a whole year. And when the infection is past, this *Zenechton*, being reduced to powder, will yet serve to kill rats and mice with. It is to be thus prepar'd;

Take of yellow and white Arsenic, of each an ounce, or $\frac{3}{4}$ of an ounce; of *gummi Tragacanth* $\frac{1}{2}$ an ounce; put this *gummi* in Rose-water or in common water over night, and it will yield a slimy water. Then beat thy Arsenic in a mortar, and put so much of this gummed water to it, as is necessary to reduce it to a paste having the consistence of dough; work it well and round it, and then cut off a slice of the bigness of a dollar, somewhat thicker; let this slice dry in the Air, and sow it in a piece of thin leather (well-dressed dog-skin is the best for this purpose;) carry this about thy neck so as to let it hang down upon

upon, and to touch the place of, thy heart. Some mix with it a proportion of the powder of dried toads, which I have done my self, it being esteem'd more powerful. Some carry about their necks dried spiders; *Theophrastus* commends *Celondine*, leaves and root, carried about the neck.

Remember also to burn frequently *Juniper-wood* before thy tent; though all ordinary fires cleanse the Air: Upon which account *Hippocrates* advised great fires to be made in *Greece* at the time of a great plague, which was thought to have been remov'd by that means. Some burn only a few chips of *Juniper-roots*, or some of the berries of that shrub, which is as effectual.

If these means cannot be had, burn some Gunpowder, ordering it like a train; this purifieth the Air likewise. And the volleys of shot made mornings and evenings in a camp, conduce very much to the dispelling of mist, and qualifying raw weather.

Frankincense also, Mastick, and such other perfumes as dry and clear

the Air, may be very usefully burnt; and even a Scholars perfume made of waste *Paper* is not to be despised.

If thou canst get *Rue*, smell often to it: And remember me for this general hint, to take good notice of all herbs that are green winter and summer, and which are not eaten by Horses or Cattel; for they are endow'd with excellent virtues for the good of *Man*, and therefore made to grow at all seasons of the year.

When the Air is pestilential or breeding any Epidemical Disease, then wash thy face with Vinegar every morning. If thou canst get *Acetum* of *Rue*, Elder-flowers, Lavender, Roses, Marigold-flowers, 'tis the better. Or, if you have the conveniency, prepare the following *Acetum*: Take *Rue*, Elder-flowers, Burnet-roots, white Dittany, Carlina, of each equal quantity, a few Orenge or Citron-peels, (of which the latter are the better of the two,) and a little Camphire, and some Walnut-kernels (the fresher the better,) leaving the bitter skins

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skins upon them; put all these into common Vinegar, and with this infusion moisten every morning thy temples, mouth and nostrils, and the beating arteries of both thy wrists; taking down a good spoonful of it, and thou hast a good preservative.

If it be cold weather, take Angelica-roots, Zedoaria, white Dittany, some dried Citron-peels; and a little Camphir, infuse them all in Brandy, especially in such as is made out of Wormwood or Juniper-berries. Of this liquor drink in the morning a spoonful. But if thou be of a hot constitution, then content thy self with the former *Acetum*, in which you may mix a little Treacle.

Some advise to take fasting some of the Juyce of Marigold, freshly express'd out of the flower and leaves, as a good preservative against the Infection. This I have not tried; but I have often in such cases used the *Acetum* of Marigold-flowers, especially for a cordial and sudorifick, and, I think, with very good success.

Or

Or make an Electuary, of Rue and Juniper-berries, of each equal quantity, adding thereto a double quantity of Walnuts, with their bitter skin on them, some Figs, a little Treacle, and a little Saffron; beat them together in a mortar, and pour on them, whilst thou art beating, as much Rue-vinegar as will reduce it to a thick Puls or Electuary: Of this take the bigness of a hasel-nut or two, fasting.

Take the roots of the greater *Burrdock*, and those of *Celondine*, both well cleared, and the bark of Ash; infuse them 24 hours in half White-wine and half Rue-vinegar; then distill it, and in the distilled water mix a little Brimstone-oyl, to render it a little sowerish. Of this take two spoonfuls in the morning for a preservative. But if any be already infected with the Plague, let him take of the same six or eight spoonfuls at a time, and sweat upon it, it being a very sudorifique liquor, which, under the name of *Aqua Bardana composita*, hath been used by me and my Collegues in Hospitals and
other

other places with very great success. You may mix some Mithridate with it, if you please.

Else take *Carlina*, *Imperatoria*, *Serpentaria*, *Valerian*, *Saxifrage*, *Tormentill*, *Gentian*, *Angelica* and *Zedoaria*, all cut small; infuse them in Brandy, and drink of it a spoonful in the morning for a preservative; but if thou hast the contagion; take *two* spoonfuls, to sweat upon it, in case the pestilential poyson be not yet broken out, and the Patients tongue not dry; but if it be, content thy self with the newly prescribed *Acetum*, as being more safe, and an inflammation being to be feared from the Brandy.

Hold *Zedoar*, *Angelica*, *Lovage*, or *Imperatoria*, in thy mouth; but if thou be subject to the Head-ach, then cut it first small, and infuse it in Vinegar, and let it stand infused for the space of 24 hours; then take it out again, dry it, and use it as prescribed above.

Amongst the good *Preservatives* reckon this also: Take *Garden-rue*, beat it in a mortar, pour Vinegar on it,

it, and strain all through a cloth; mix some Treacle with it, set it by in a glass, and take of it in the morning half a spoonful or a whole. Put a little Camphir to it, if you will have it stronger.

Or put Camphir in Wormwood-wine, and drink a good draught of it every morning.

When I served in times of great mortality, I infused in Wine *Carduus benedictus*, *Wormwood*, *Scordium*, *Dictamnne* of *Creet*, *Burnet-roots*, and *Citron-peels*, and after I had taken every morning a good mess of sowerish broth, I drank after it a good glass of this infusion. As long as the herbs retain a bitterness, fresh wine may be infused upon them.

Infuse also white and well cleansed *Garlick* in *Acetum* made of *Rue*, and take of it a spoonful or two in the morning.

In the Apothecary-shops are Pills, call'd *Pestilential Pills*: Among these cause a little Camphir to be mixt, and of it let Pills be made; of which take at once three or four every week,
taking

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taking them in a spoonful of White-wine, an hour before supper. These prevent all inward putrefaction, and keep off all infection, nor do they suffer any collection of morbifique matter within thee, though they purge not, but only keep the body soluble. They are made up of Aloe, Myrrhe and Saffron. Formerly I have printed a whole Book of such Pills, which I call'd *Marocostinas* in *Latin*, where I have described their vertues at large.

For the *Rich* may serve what follows: Take *Terra Sigillata*, *Bolus Armenus*, *Pulvis Alexipharmacus*, or *Bezoardicum Nicolai*, or the *Cordiales Alexandrini Benedicti*; item *Species de Hyacintho*, *Aqua Stapediana*, *Acetum Theriacale*, or the *Red Hungarian Powder*; all these serving not only to preserve, but also to recover, by Gods blessing.

Provide out of the Apothecaries-shops Pastils of the extract of *Angelica* or *Zedoaria*; take one or two of them in thy mouth every morning, and there let them melt down. Keep

Keep thy body clean every way ; be chearful ; avoid rashness ; nor be affraid, considering that many have been infected by fear, terrour, and melancholy. Chear thy self up now and then with a glass of good and sincere Wine, but not to excess. *Never fasting, nor never full.* One that is empty, will soon be caught with this distemper, especially if he live amongst infected people. If he do, let him drink a good draught of Wormwood-wine, Juniper-berry-wine, Rosemary, Sage, or Zedoar-wine ; which may keep thee from many dangers. But remember, not to drink more of it than will chear thee up and revive thy Spirits. At least, drink a little Wine with Camphir and Vinegar, kindling the Camphir and letting it burn in the Wine, so as to let it sink into it ; for if it burn on the top, it will there remain swimming : And if the Wine be skinned over with it, kindle it again till it be quite burnt out. Take of Camphir for one draught, the quantity of a pease ; but if thou be
subject

subject to the Head-ach, then Camphir will not agree with thee.

In case that any come to be infected, he is forthwith to be separated from the sound, and to be laid to bed, so as his head and shoulders may lye somewhat high; by which means he will be less subject to faintness. Then let him presently take some sudorifick Medicine, to make him sweat; for if the poyson be not speedily driven from the heart, the Patient is lost. You are also to take great care, that this Distemper prevail not, and to endeavour to discover it before the Patient be quite disabled: For, as soon as any begins to droop, grows melancholy, faint and feeble in his limbs, so as that he is hardly able to hold up his head, drawing his breath with difficulty, letting his head fall to and fro, losing his stomach, growing yellowish about his eyes, with the apples of his eyes standing out, finding head-ach, interrupted heats and colds; as soon, *I say*, as these symptoms appear in times of the Plague, Spotted Feavers, Hungarian

garian Disease, &c. you may then look to it by times; forasmuch as such Patients, that are already infected, grow often about until the sixth or eighth day, as I have known my self, untill the lurking poyson of the heart has got the prevalency; and then the poor Patient is quite cast down, and often dyes in very few days, and even in a few hours. Wherefore thou art not to stay, till the swellings and boils appear behind the ears, under the arms, &c. or till the Carbuncles, Bubo's, and the like, break out; but thou art immediately to make use of the best Medicines, thou canst be Master of, to drive out the poyson, if thou wilt save thy life. I never found any thing, that was considerable, done in the Plague, by means of Purging and Bleeding; but rather on the contrary, all those that had Spots, if they were purged or let blood, soon after died. However, I will prescribe nothing magisterially to any man; let every one endeavour to do, what he can give a good account of. I have, together
with

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with my Collegues, treated many hundreds in our Hospitals infected with the Plague, without ever opening a vein, and yet we have by Gods blessing recovered near 600 persons, besides those that by the same mercy we have cured in their several Houses.

Now to procure sweat in the very beginning, take the quantity of two hal-el-nuts of Treacle, dissolve it in common Vinegar; but if thou canst have a cordial *Acetum*, made of Rosemary, Lavender, Elder-blossoms, Rue, Roses, or Elder-berries, use it much rather, and give it the Patient to sweat.

Or take the roots of *Celondine*, boyl them in Vinegar, and dissolve some Treacle in it: Or take *Cardus benedictus*, Rue, *Petasites* or *Butter-burr*, a little *Angelica*, *Zedoaria*, or *Saxifrage-roots*, boyl them together in half White-wine, and half Vinegar, or only Water, dissolve a little Treacle or Mithridate in it, and let the Patient take it warm, to make him sweat.

Mithridate hath the like virtue with

D Treacle,

Treacle, yet neither of them are safe to take for Women with Child, old Persons and young Children.

You may also make use to good purpose of the Saxon-powder, taking of it the weight of a Ducat in *Carduus benedictus*, *Scabius*, or *Sorrel-water*; which Powder is thus to be prepared:

Take *Valerian* half an ounce; *Celandine*, or *Nettel-roots*, of each one ounce; *Polypody*, *Althaea*, (or *Marsh-mallow*,) wild *Angelica*, of each two ounces; of garden *Angelica*, four ounces; of the rind of *Laureola*, (or *Lowry*,) an ounce and an half: These roots are to be dug up in their best strength, viz. between the middle of *August* and the middle of *September*, and being cleansed, they are to be cut small, and then put in a glazed pot, pouring a sharp Vinegar upon it, so as to cover it two inches high. Then lute on the cover with a lute made of whites of Eggs and Flower; let all be boiled upon a gentle fire; then pour off the liquor, and dry the roots, and reduce them to powder, mixing with

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with it some 26 berries of *Herbe Paris*, (or *One-Berrie*) which look like Pepper-corns, very good against poison; and thus the powder is made. This herb grows in shadowed and moderately moist places; I have found of it several times in *Koshinger-wood* near *Ingolstad*: It hath four leaves on one stalk, and one berry on the top. An herb belonging to the family of *Solanum's* or *Night-shades*; whence the leaves of it do very much cool Inflammations, especially those of the Eyes, when laid upon them.

Take notice of *Sorrel*, bruise some of it and pour Vinegar on't, (the *Rue-acetum* is the best,) and strain the juice through a cloth; put into it a little powder of *Angelica*, about the weight of half a Ducat; or of the root of *Dictam*, or of Butter-burr, or a little Treacle or Mithridate, and give it to sweat.

On this occasion of mentioning *Dictam*, I must add, that in our Country there grows only the white *Dictam*, which is, among others, an

excellent Antidote, but you must take of it the double quantity and weight to that of *Creta*. You may boil off the root of half an ounce in half White-wine and half Vinegar, or, instead of the Wine, in *Carduus-benedictus* water; and drink of the Decoction warm, and put your self to sweat; or take of the powder of it a drachm and an half in warm broth, with a little Vinegar, for the same purpose.

The *Dictam* of *Creta* hath hairy leaves and purpureous blossoms, and is used in the preparation of Treacle. This herb by its odour drives away Serpents. The wild Goats being hurt by any Arrows eat this herb, and 'tis said, that by this means the Arrows fall out of the wound. This perhaps hath no other ground than that of the Poet *Virgil*, affirming that *Venus* with this herb healed her Son *Aeneas* when wounded in the War. His words are *Aeneid. 12.*

*Hic Venus indigno nati concussa dolore:
Dictamnium genitrix Cretæa carpit ab
Ida,*

*Puberibus caulem foliis & flore coman-
tem*

*Purpureo, non illa feris incognita Capris
Gramina, cum tergo volucres hæere
sagittæ.*

About this time came in the Hunga-
rian Infection, which was a Disease
that bred such a putrefaction in the
bodies of Men, that even when they
were near death, they fell a vomiting,
but that with such a stench, that no
body could endure it. Here those
Medicines do well, that preserve the
body from putrefaction; for the
Plague, Spotted Feavers, and the Hun-
garian Distemper, proceed all from
inward corruption. And of them,
the *Plague* attacks the Spirits residing
in the Heart, and so killeth very
quickly; whereas *Spotted Feavers* have
their seat in the Blood, and therefore
do last twelve, fourteen, and sometimes

twenty days before they kill. But the *Hungarian* Disease is seated chiefly in the putrified Phlegm of the Head and Brains; whence those that labour under it, are tormented with great and maniacal head-ach.

But though these three Diseases have their rise from one and the same cause (*Putrefaction*;) and are to be cured by the same remedies; yet is therein required the discretion of a prudent Physitian, for the ordering and prescribing of Medicines according to circumstances.

Take a drachm of *Zedoary*, give it pulverised to the Patient in *Acetum* of Rue, or Elder, or Marigold-flowers, or even in common Vinegar: Let him sweat upon it. 'Tis good against all sorts of venom, and causeth a sweet breath, as resisting inward corruption.

In the Apothecary Shops you find an Electuary, called *Diascordium*, found by that famous Physitian *Hieronymus Fracastorius*. It is like to Treacle and Mithridate; only 'tis red from some Ingredients giving it that colour.

This

This may be used with safety by Women with Child, young Children and all sorts of Persons, whereas, as was said above, Treacle and Mithridate may not. It is made chiefly of *Scordium* or *Water-Germander*, which hath the smell of Leek when bruised.

Galen in his first Book *De Antidotis*, Chap. 12. writeth, that when in a great battel some slain bodies chanced to fall upon this Herb, they rotted not as far as they were touched by this Herb.

The said *Fracastorius* did compound this his *Diascordium* out of this Herb *Scordium*, *Tormentil*, *Serpentaria*, *Gentian*, *Bole Armeniac* and *Terra Sigillata*, and such like Ingredients.

It is chiefly to be used in the hot Diseases of the Head; which I have done many a hundred times. Take of it the weight of about two ducats in common Vinegar, or in Elder-water, or rather in the expressed Juyce of fresh Sorrel, and sweat upon it. Tis very good especially in the *Hungarian*

rian Sickneſs and other venomous and infectious Diſeaſes. To young People you may give a leſſer quantity, and proportionably you are to leſſen the doſe for Women with Child or in Child-bed, and little Children.

Befides take notice of the Powder of Doctor *Heſſius*, which hath been uſed with great benefit, and is thus prepared;

Take a drachm of Sugar-candy, a quarter of an ounce of pulveriſed Ginger, and a drachm of Camphir; reduce all to a fine powder; give of it to the infected Patient the weight of a drachm in Vinegar mingled with the water of Marigold-flowers, Scabious or Sorrel, and ſweat upon it. If you have none of theſe waters, then look that the Vinegar be not too ſharp, and to that end dilute it with ſome wine and water. Mean time, though in this caſe I highly value Camphir, yet in ſtead of Ginger I would uſe Zedoary, Saxifrage, Carlina or Imperatoria, or the true *Petaſites* or Butter-burr.

Again,

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Again, *Brimstone* is none of the meanest remedies in these infectious cases; for it preserves the body from putrefaction. Wherefore take of the noble Flowers of Sulphur a quarter of an ounce, being sublimed from Colcothar; add to it one scruple of Camphir, an ounce of the Spirit or Oyl of Cyprian or Venetian Turpentine. Put all this into a Glass-head, lute it well and put it upon hot sand or ashes, whereby the Oyl of Turpentine will come to open the Brimstone, and produce a red colour like a Ruby, or at least as yellow as a high-colour'd Hyacinth. Of this give some to the Patient three or four times, mingled with a little Treacle, or in Sorrel, Cardobenedictus, or Scabious-water. This Balsom is excellent also in sore Breasts that are growing purulent, taken in warm broth, or in a good wound-drink. But this must be in cases of no great heat or inflammation, in which it would be dangerous.

Amongst all the Remedies, which
serve

serve against Infectious Diseases, that of *Henricus Stapedius*, to be found in my Book *de Pestilentia*, is an excellent one, and perhaps the best for curing as well as preserving; of which half a spoonful being taken fasting, is able to keep a Man well for twelve hours or more: But if any be already infected, he must take of it at any time immediately, to the quantity of a spoonful and an half, or two spoonfuls, for sweating. Which is to be repeated every eighteen or twenty four hours, to make the Patient sweat, till he recover, or till the Pestilential Boils and Carbuncles break out behind the Ears, under the Arms, or else-where. This Water, though it be somewhat dear, yet its vertue countervailes its price. The older it grows, the more vertue it hath.

Many have ascribed great efficacy to the Blood of Animals: Thus old *Democritus*, (witness *Galen*,) prepared an Electuary of such Blood, called

Diathe-

Medicines Experimented. 43

Diathematôn. Some esteem much the Blood of *Storks*, because they eat Toads and Snakes; others value the Blood of Hens, because they eat Spiders and other venomous Insects. I should esteem most the Flesh or Blood of Badgers; which is to be dried in the shade, and that done, you must mix with it Saffron, Camphir, and some or other of the Anti-pestilential roots, as of Angelica, Zedoaria, or the like, together with a little live Brimstone to the quantity of a ducat; which is to be taken in *Acetum* of Rue, or Marigold-flowers, or Walnuts, and in case of want of these, in common Vinegar: Upon which the Patient is to sweat. If thou art a good husband, have ready a good *Acetum* of Rue, Walnut-kernels and Marigold-flowers, taking the greater quantity of Rue; and as you use it, fill it up again with *Acetum* of Elder-berries.

The Rich do use for their Physick in the time of the Plague the red Hungarian, as also the Imperial red and gray

gray Powder, Bezoar, Harts-horn, *Antidotum Matthioli*, *Terra Sigillata*, *Bole Armeniack*, *Scorzonera* and *Contrayerva*, *Species de Gemmis*, *Diamargariton de Hyacintho*, and other high Medicines, of which I have largely discoursed in my above-cited Book *De Pestilentia*. But I, though I have used such remedies among the Rich, yet I content my self commonly with the plainer and most common Medicines, of which I have more knowledge and experience.

The Pickle of *Ebulus* or Walwort, (*aliàs* Dane-wort or Dwarf-elder,) which is of kin to Elder; as also the Pickle of Juniper-berries, are also of great use in this case.

The Physitians of *Ausburg* made great use, in the year 1572, of the red Imperial powder; the composition of which is in the *Augustan Dispensatory* at large, as also in my Book *de Peste*.

These are the several means to provoke sweat, which I esteem to be of great efficacy for that purpose upon a sudden.

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sudden. And though Souldiers have not the conveniency of a bed for sweating, when they are in a march, and often cannot put off their cloaths for many nights together; yet let them use such sudorifique means: for, though they cannot sweat outright, yet they may fall into a dampish moisture, which if it strike not in again, may prove as good as a sweat. Yet in this case he must turn his shirt: *Quod non facit sudor, prestat id tenuis udor.*

But here is to be noted, that 'tis not enough, once only to give a sudorifique Medicine to an infected Body; considering that the venom, like a raging Sea, is tossed to and fro every way. And though it should seem to thee, as if by thy approved Antidote thou hadst overcome the Disease, the Symptoms of it excepted, yet thou art not to trust in this case; for I myself have been sometimes deceived, and hard put to it to make good what by confidence I had omitted. Wherefore you must not trust to the *once* taking a sudorifique potion or powder,

der, because such malign and lurking Diseases, that keep no stich, do indeed fly the first time from thy Medicament, and hide themselves under it, but they are wont suddenly to reappear. Wherefore you must repeat the Antidotes, that were first administered to you, for the time of 16, 18, 20 or 24 hours, according to circumstances, and so long and often, till you judge your sick Brothers or Friends Heart secured from the infectious Venom.

When the sweating is over, thou must then refresh thy Patient, first by drying him well, and next by giving him a little Vinegar to taste in a spoon. The Rich may afford some slices of Citron, of which *Theopompus Chius* writeth, that the Tyrant *Clearchus Heracleota*, who lived in *Pontus*, having poisoned many People, the vertue of Citron was at length found out, of which a slice being eaten proved an effectual Antidote against it. The same vertue may be found in a slice of a common Apple; and the

Syrupus

Medicines Experimented. 47

Syrupus de Pomis is one of the Cordials of our shops.

But the thirst, that uses to follow upon sweating, will not be quenched with so small a matter; wherefore take three parts of water, one part of Vinegar, and, if the Patient be not too hot, one part of Wine, mixing some Sugar therewith, and of this let him drink a good draught, and it will cool and refresh him.

Besides, take some of the guts of Hens, and some slices of Radish, sprinkle them with Vinegar and Salt, and bind them to the soles of his feet; this will draw away the heat. But let not the Radish lye too long upon them, because it will give a stink that may increase the head-ach, where-with the People that have the Plague are commonly troubled enough without provoking it. Moreover you will do well to tye about his wrists some Rue beaten with Vinegar. Anoint his Loyns and Back-bone with the Unguent of Roses, or with fresh Butter; but if there appear any Spots, forbear

forbear to anoint him, lest they should be driven in.

You will do well to have *Epithemata* of good things about you, as of Rose-water and Elder-vinegar, to lay over the Heart; with which mix some Camphir. But if you find any thing of Specks, &c. broke out, you must use no wet thing.

Anoint his Heart with Oyl of Scorpions, take the Oyl of Sea-blossoms and of those Earth-worms that appear after rain, of each six ounces, of *St Johns-wort* Oyl two ounces, of fresh Elder-blossoms and Rue, each a handful and an half, of the *Acetum* of Marigold-flowers and Roses, each about three ounces, of live Spiders forty five: Boil all these together, till the Vinegar be so qualified, that when 'tis thrown into the fire, it cause no cracking there. Then strain it, and in this strained Oyl put a matter of five and twenty Spiders more, of the biggest sort, and add to it of Camphir dissolved in the Spirit of Roses half a drachm, let it stand in *Balneo Mariae*
or

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or upon hot embers for twelve hours, and then put to it of Treacle and Mithridate, of each half an ounce, and let them work together. With this Oyl anoint the eight Pulses, *viz.* both Temples, behind both Ears, both Hands, and both Knees, as also the Heart. And this is an excellent *Succedaneum* to Scorpion-oil, much used by the *Germans*.

Besides, you must refresh and strengthen the Patient with convenient Meat and Drink; I mean with good Flesh or Barley-broath, with a little Vinegar in it to make it savoury to him who will have appetite too little else, till he have shaken off this venomous Distemper; which when he hath done, his stomach will be so keen, that you will find work enough to keep him from surfetting.

Be also careful to keep thy Patients Body open; if he be obstructed, use a Clister, or take Butter or Hogs-grease, mixing a little Salt with it, or, if it be to be gotten, a little Mice-trickles, and put it into his bowels. Physick

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at the mouth for this purpose is not always safe: When the Patient is discharged of the venom, a little liquor of stew'd Prunes with some Senna-leaves in it will do well for opening the body. Some fresh Butter eaten in the morning, or melted in warm Broath, and taken down, is wont also to keep the body soluble.

The Drink of these Patients may be, Water with some Bread soaked in it; or take of such Water, wherein Bread hath been soaked, one quart, and a little Vinegar, with two or three spoonfuls of Kitchen-sugar, mingling it well together. If you have no Sugar, use such Water with Vinegar alone: This affords good Drink in malignant Feavers. Among the *Romans* it was drunk by the Souldiers, under the name of *Posca*.

You may also take a handful of well cleaned Plantain-roots, and boil them up in three quarts of Water, and then decant the Water, which though it be somewhat bitter, yet 'tis very good in Fevers, and a good Drink in hot Distempers.

If

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If you have Oyl of Vitriol, let a few drops of it fall into clear Water, mingling it well; and you will have a factitious *Saxer-brun* or *Acidula*. But use no Metalline Vessel for this purpose. With this kind of Water many People have been served in all sorts of Fevers; the Oyl of Vitriol in such Distempers, if rightly used, being very beneficial.

But if a Man should have with it any Pulmonick Disease, in that case he must forbear acid things, and use Liquorice, and content himself with Ptilane. Nor is it at all good to use acids in Pestilential Pleurifies.

And since on this occasion we mention this case, and we having above given warning, not easily to blood in Pestilential Diseases; yet may Venæ-section be sometimes, upon good consideration, used in that *Pleurisie*, provided it be done in the very beginning, and the Patient be strong and full of blood. Yet this is not to lessen the blood, but only to give it vent; but before bleeding the Patient

is to sweat by taking some of the above specified Antidotes.

If the Patient have violent Head-ach, lay on his head Vine-leaves or fresh Cabbage-leaves; and, if you have no Alabaster-salve, take two parts off Vinegar, and one part of Oyl of Olives (the Sea-blossoms Oyl, and Elder-Vinegar were better;) dip long rags of linnen therein, and having well squeez'd them again, lay them lukewarm over the face and temples. Even Vinegar alone is good. Of such Applications you may make many, of *Acetum* of Roses, Elder-blossoms, and the like, with a little Camphir. The expressed Milk of Peaches is also very effectual in this case.

If at the going off of this Distemper, a hot defluxion should fall into the Eyes, take Camphir and infuse it in water, and often moisten the Eyes therewith; and if it should be cold and windy weather, you will do well to keep your self out of the open Air, and not to let this water dry up in your Eyes in the cold wind.

In

Medicines Experimented. 53

In case of having lost thy hearing, take of thy own Urine, and with it wash thy Ears within, but withall dry them very well, because that moisture is very noxious to the Ears: And it often happens, that after the Hungarian Sicknes People grow deaf or hard of hearing. Others put the water of *Carduus-benedictus* distilled with Wine into the Ears, or the Oyl of bitter Almonds.

If thy Throat swell, or the Palate of thy Mouth be fallen down, gargarize thy Throat with warm Milk, wherein Figgs have been boil'd, or sweetned with Sugar. The Flowers of *Phyllirea* or *Mock-privet*, which grows in the hedges, boiled, and used for a gargarism, heals also a sore Throat. The same doth the middle rind of *Oxyacantha* or *Haw-thorn* if boiled, with a little Allom dissolved in the Decoction. If you have the juyce of Mulberries, mix a little honey of Roses with it, and often take a little thereof. The roots of Sloes boiled in red Wine, and the Mouth often

E 3 washed

washed therewith, is also very good.

If thou hast the Squinancy, boil Scabious in Meath, and drink thereof warm, when strain'd. Beat Turnips, and fry them in Butter or Oyl, and clap them in a cloth round about thy Neck.

If thou cast up blood, take Moufe-ear, Ground-ivy, Cumfrey; boil them in half Wine and half Water, or in Meath, and drink often of it. But if the Plague reign not, open first a Vein.

For a violent Cough, boil white Turnips, well cleansed in common water; throw away this first water, pour on other water, and in it let the Turnips boil till they grow soft. Strain this water, sweeten it with Sugar, or infuse in it Liquorice cut small; and drink of it mornings and evenings warm. Or make a Decoction of *St Johns bread*, and drink it, abstaining from all sour and salt things,

The bleeding at the Nose is also incident to persons infected; which is no good sign, though in sound persons

sons it often frees from the Head-ach, and cools the Liver. If this bleeding be too violent, clap Ice-cold water about the Patients Neck, or let him put his *Pudenda* in cold Vinegar.

CHAP. V.

Of the Inflammation of the Tongue, its rise, and concomitants, together with the Remedies.

VWhen the Tongue is inflamed, the whole *Oesophagus* or Weasand is inflamed also, and this from beneath upward, because the inward fire sends up its smoak all along, as it were, that chimney, which like soot sticks to it, drying and blackning the same.

But there is another Inflammation, much more dangerous, which taketh its rise about the Heart, and therefore is call'd the Inflammation of the Heart, which proceeds from the great inflammation of the orifice of the Stomach,

mach, situate near the Heart, in which is inserted the sixth pair of Nerves, which maketh the said orifice very sensible of any pain. This part being seized by so great an inflammation, which is venomous withall, it must in a manner harden, and shrink; and this heat is of that extent, that, the inner Membrane of the Stomach and that of the Tongue being one and the same, what befalls the Stomach, the Tongue must needs be sensible of it. Whence it comes to pass, that if the Gall overflows and passeth into the Stomach, the Tongue presently finds the bitterness of it; or if the Stomach be full of slime, or foul, or the like, the Tongue is soon affected therewith.

There is another kind of Inflammation, by the *Latins* called *Prunella alba*. This is of the same kind with the rest, but not of the same degree; for 'tis not of so dry a nature, as the others are, but commonly is moist, yet overlays all the Gums, the Throat, and the Weasand with such a tough white slime, like a kind of leather, and

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and so covers the Almonds with the same, that sometimes it can hardly be removed even with Instruments. The Tongue is as if it were cruſted over with dough, the Gums like an Oven that by the heat of fire is burnt white, the Almonds cover'd as 'twere with white leather, and the Palate of the Mouth likewise. And in this caſe if the Patient will ſpeak, he lalls and ſtutters, his Tongue being burthen'd with a load of ſlime; or, if he make his Tongue wagg, the ſlime ſpins out like a thred, and ſo invades the Teeth as if they were laid over with varniſh. And when this varniſh on the Teeth grows black (as I have often obſerv'd it to do) and drieth on them, 'tis a mortal ſign; of which *Hippocrates* ſaith, *Quibus in febris livores circumdentes naſcuntur, his fortes ſiunt febres*, 4. *Aph.* 53.

Theſe are the three ſorts of Inflammation; for which let us now ſeek out the Remedies, beginning from the laſt, the *white*. This is not to be maſter'd by gargarifms alone, but the
hand

hand must be employed also. Take therefore Cotton-wool, or Flax, and wind it about a stick or rod, and dip this in Vinegar, and rake his Throat: and Gums therewith, yet taking care: not to make it raw; let him gargarise: between, and wash well his Mouth with Water and Vinegar, or Mulberry-juyce. *Privet* that grows in the hedges, or the middle rind of *Hawthorn*, boiled in Water and a little Vinegar, then strained, with a little Sal-armoniack put into it, is in this case: an excellent gargarism; but if there be blisters upon the Tongue, or elsewhere, then take instead of Sal-armoniack a little un-burnt Allom, and mix it therewith. If you can have the Juyce of Turnips, or the Juyce of fresh House-leek, dissolve therein also a little Sal-armoniack, and use it to wet the stick, wherewith thou cleansest the Throat of the Patient; dipping it often therein, and carrying it about the *Uvula* or Palate of the Mouth; and you will see lumps come away as big as Pease. The skin is
under

under this *Prunella alba* fair and red, but tender. Whilst thou art cleansing the Patients Mouth, let him often gargarise with the Waters above-specified, and he will clear his Mouth of the loosen'd lumps. If thou canst get Mulberry-juyce mixt with Honey of Roses, the Mouth will heal the better; for upon this sort of Inflammation there usually follows a Putrefaction of the Mouth, and in case thou perceivest any such thing, take Wood-sorrel, and the abovesaid rind of Hawthorn, make a Decoction of it, and put in it a little Allom, and often gargarise with it. Clean thy Teeth from the slime with Water well sharpened with Vitriol.

The common Inflammation of the Mouth may be cured with frequent washing of the Mouth, taking a gargarism made of House-leek, Lettice, Night-shade, or Self-heal Water, mixing a little Honey of Roses and Mulberry-juyce with it. Of this gargarism the Patient is also to swallow a little, thereby to moisten the Throat.

Some

Some take House-leek, and beat it, and put to a pound of it half an ounce of Sal-armoniack, mixing it well together. And so they put it for some days in an earthen pot glased underground; then they distill of it a Water in *Balneo* or in Sand: Which is excellent both to drink and to gargarise, though the Sal-armoniack make it a little unpleasant.

But there is nothing better to allay this Inflammation than Niter; which is so well known amongst Souldiers, that they are wont to give one another Gunpowder to drink, which Powder performs this effect not upon the account of the Coals or Brimstone, but the Saltpeter.

For this cause Experienced Physicians and Chirurgions Endeavour to purifie Niter for this use, that it may have the greater effect; and this they do in manner following:

They take of the purest Niter they can get, as much as they think fit; they beat it to a fine powder, and melt it in a large Crucible, and whilst it boils

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boils up and foameth, they pour into it a little powdered Sulphur, and so let it boil together, till the blew Sulphur-flame ceaseth; then they cast in more fresh Sulphur: Which they repeat often, and then pour out the Niter into an earthen vessel glased, making Lozenges of it, of which they put one pulverised into a quart of limpid water, and so give the Patient to drink of it as much as he needs to quench his thirst. Or they give of this purified Niter to their Patients, labouring under this Inflammation, the quantity of a ducat or half a ducat weight in Broath, or in Ptisan, till they find the Tongue cleared of its slime.

The use of Salt-peter thus prepared removeth also the Inflammation of the Heart, especially if it be melted upon Lead, and then proceeded with as before. For Lead is a considerable cooler, of which cooling quality the Niter, whilst it is melting upon it, taketh in not a little. Let then your Lead melt, and when 'tis melted, dissolve

dissolve the Niter upon it, and then, to purifie it, cast some Brimstone into it, as was said above, till it be cleansed from all impurity; and then give of it to thy Patient two or three times a day, according as need shall require.

Otherwise, take live Crafishes and fresh House-leek, beat them together in a mortar, squeeze out the Juyce, with it mix a little Sal-armoniack, or a pretty deal of thy prepared Niter; make a Potion of it, and give of it even cold to thy Patient, repeating this several times, every eight or ten hours once, according as you shall see occasion.

Or, take fresh Lard, (if it be salted, draw it through hot water to unsalt it,) and cut a slice of it two fingers large, and of the thickness of a knives back; put this into the Mouth of thy Patient, it is an excellent remedy against this Inflammation; of which I shall give the reason hereafter. I have seen wonders done with it. But if thy Patient do rave, then fasten this slice of Lard with a thred and needle

Medicines Experimented. 63

to his shirt or doublet, lest he swallow it. Or take fresh Butter, and put it in cold water, and of it give thy Patient at a time the quantity of a hazel-nut to hold it upon his Tongue, and let it melt there; which will keep the Tongue always moist. And if thou work among this Butter some of thy prepared Niter, it hath a wonderful effect, though the taste be not pleasant.

I promised above to explain the Reason of the Cure of these Inflammations. When you take a gargarism of the Waters of *Night-shade*, *Wood-sorrel*, *Knot-grass*, *Endive*, *House-leek*, and the like, mingled with Vinegar, you do well, but this is not enough; the reason is: If you wet a piece of Leather, you make it indeed limber, but when it comes to be dry, it grows hard and shrinks; except you grease it over with some fatty matter, and then it will remain smooth. So it is with the Tongue; though it be made clean with gargarisms, yet will it become again rough and untoward, unless some fatness be used:

used: For which cause I have directed to use Lard, or Butter mixt with Niter..

If the *Almonds* be swelled, thou must abstain from all sower things, and prepare a gargarism of Figgs, *St. Johns* Bread, Mallows-flowers, Liquorice, Elder-caness, mixing with it some Rose-honey or Juyce of Walnuts, or the *Rob Diamorom*, gargling often with it, seeing that this symptom is a dangerous thing; for when the Throat swells of it, few Patients do escape death, especially if it be a Pestilential Squinancy. And in case there appear any Tumour outwardly, take fine Flower, Milk and Saffron, making a Pulse of it, and, to keep it from growing hard, mix with it *Althea-salve*, or *Houndstongue-salve*, the Oyl of *blew Violets*, *Mullein*, *white Lillies*, *Camomile*, or the like, adding a little Oyl of Scorpions to it, and applying this outwardly.

Make also a Scraper of *Alder-wood*, if it may be had; if not, other wood will serve, though *Alder* be best. Throw it into cold water, and let it lye:

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lye there, using it as often as there is need; yet take heed of making thy Tongue sore or raw.

CHAP. VI.

Of Fevers, Belly-aches, Tumors of the Belly, Yellow Jaundise and Distempers of the Liver.

IN Camps there is nothing more frequent than Fevers of the Stomach, arising from ill dyet, which Souldiers are often put to for want of better, eating what they can get, Cheese, Herbs, Flesh half boiled, itale and musty Bread and the like. Hence is gather'd a morbifick matter in the Stomack, which causeth putrefaction, and consequently Stomack-feavers.

In this case thou art first to purge: And for that purpose make use of the *Pulvis solutivus de tribus*, recommended above, taking the weight of a ducat or a ducat and an half, in warm broath, and fasting two or three hours after
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it. Or fetch from the Apothecary of the *Tabulatum Diaturbith cum Rhubarbaro*, or the *Diaphænicon in tabulis*, taking half an ounce at a time, and keeping thy Chamber. Or, infuse Sena-leaves in Wormwood-wine, and drink a small glass-full of it an hour before thy break-fast: This will also serve very well, especially if some *Carduus benedictus* have also been fermented in the Wormwood-wine.

If thou art troubled with Gripings or Inflation of the Belly, take of Zedoar, or Angelica-roots, or Orange-peels, cut them small, and take at a time the weight of a ducat in hot broath. If the Inflation be much, take in the morning the quantity of a hasel-nut of Mithridate, fasting an hour after it; and if the pains of thy Belly prevail, make a Decoction of Wormwood in Wine, and drink of it as hot as thou canst; this will allay the pains and give thee some stools. Mean time abstain from raw Fruit, and Beer, Milk, Herbs, and such like.

If

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If thou art swollen, take half a drachm of Rubarb, and about the same quantity or a little less of Mechocan; reduce it to powder, and take it in Wormwood-wine, or warm broth, in the morning fasting, and eat nothing within an hour or two after. Be careful to take down some Treacle in the morning fasting; but you are first to be purged. Otherwise make a Decoction of the Roots of Elecampane and Pimpernel, or Swallowwort, in Wine, and drink a warm draught of it mornings; it will provoke Urine. If thou canst bear amongst it Wormwood, *Carduus benedictus*, or Centory, add them in the Decoction, and it is a good potion for the Liver.

An Herb, call'd by the *Latins* *Eupatorium* *Avicenne*, in *English* (I think) *Common Hemp-Agrimony*, hath a great operation in swelled People, drinking of the Decoction thereof, made in Wine. Besides, use in this case Parsley and Smallage-roots in thy meat. Boil Horse-radish, and drink of the

Decoction warm in the morning. Thy ordinary drink is to be a water, in which hath been boiled a good quantity of Cummin, Annis or Fennel. You may also now and then drink a little Wine, swelled People having no great heat in them.

From these obstructions of the Liver and Mesaraic Veins comes difficulty of Breathing and a dry Cough, which occasions the Inflation of the Belly, and helps to entertain the crudities and indigestions: Mean time there useth to follow upon this the Yellow Jaundise. For this, take the Roots of *Cyclamen* or Sow-bread, reduce them to powder, and take the weight of half a ducat in Meath, or Wine mixt with a little Honey, sweating upon it; and you shall find your sheets discoloured of a yellowish colour. In the same manner make use of the Seed of *Aquileja*, or *Columbine*. I have reduced these three to powder, and mixt them together, and given of it the weight of a ducat to sweat; which hath proved very successful.

Orange,

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Orange-peels used in like manner, do also much good in this case. The bitter Centory boiled in Meath, and a good draught drank of it warm in the morning, is also very good. Likewise a Decoction of the white Horehound and Cichory-roots is also used to good purpose in this case. These things expel also Worms, if any do lodge within thee; for which may also be used the Souldiers Pills of *Aloe*, called *Marocostina*. In this case Vinegar of Squills is also an excellent remedy, taking of it in the morning early a spoonful, two or three, and exercising after it. It will open the Breast, and make you expectorate phlegm and slime in abundance.

If you be troubled with Wind and Gripings of the Guts, be careful to have your Body soluble. Boil *Calamus*, cut small, in broth, drink of it hot, putting a little *Angelica*, or *Masterwort*. Do this mornings and evenings, and beware of drinking cold, and abstain from all Milk, keeping your self very warm, especially about

the Feet, which you will do well to bath with a Decoction made of Afarabacca, Camomile, wild Trefoil, wild Marjerom, wild Thyme, putting a little Salt into it. For your drink, boil Cummin, Annis or Fennel in water; and now and then a glass of wine may do well.

These Gripings may also be cured with drinking very bitter Wormwood-wine, as hot as you can endure it. This is also opening. If you boil Elecampane, and Orange-peels with the Wormwood, it will have the greater effect. And if you add to it *Allium Sylvestre* (Crow-Garlick) you have an excellent Medicine for this purpose. This I have used my self, and found present relief from it, when in a very hard Winter upon a Journey I was taken with these Gripings. 'Tis indeed a very unpleasant potion, exceeding bitter, especially being to be drunk hot; but the good effects will make amends for that. If the pains should not cease after all this, mix with it the quantity of a husel-nut of
Treacle

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Treacle or Mithridate, and so drink it off together.

If you can get Malvasy, mix a little Oyl of Olives with it, and drink of it warm. Oyl of sweet Almonds would be better, one half of that and the other of Malvasy; though these things perhaps will not so easily be had in a Camp. Fresh Butter may serve instead of Oyl.

Else make a Decoction of Juniper-berries, or Laurel-berries, and Elecampane in strong Wine, and drink a good draught of it mornings and evenings. Or reduce the Herb *Carduus benedictus* to powder, and drink its weight of a ducat in warm Malvasy or other strong Wine; it will remove the Gripings, especially if you mix with it a little Zedoary pulverised.

For your Meat, take Larks, if they chance to be in season, draw them, and fill their bellies with Garlick, and so roast and eat them.

Make a Decoction of Burnet, or of Master-wort, and Laurel-berries, in Beer, strain it, and melt a little

F 4

Butter

Butter in it, adding a little Pepper, and so drink of it hot.

For an outward Application, take the Oyl of Rue and Wormwood, dip Cotton into it, and put it warm to thy Navil. Or beat Onions, and fry them in Dill or Camomile-Oyl, wrap it up in a linnen Cloth, and apply it to thy Belly, where the pain is most violent, refreshing it often.

The Oyl of Laurel-berries, mixing a little Juniper-berry-oyl or Nutmeg-oyl with it, may be used with great benefit, anointing the Navil therewith, and afterwards put to the Navil a warm dry bag filled with Bran and Camomile-blossoms. Or fry Cowdung in the Oyl of Dill, or of Camomile, or of white Lillies, and apply it thus to thy Navil, keeping thy self, and especially thy Leggs, very warm.

If you perceive any Hydropical Distemper in you, make a Decoction of Wormwood and Juniper-berries in Wine, drink every morning a warm draught of it fasting. You may also to very good purpose boil with it Swallow-

low-wort, Burnet, or Succory roots, adding also to it some Annis or Fennel-seed. But it will be requisite first of all to purge with Mechoacan and Rhubarb; and now and then to repeat this purgation. Abstain from Milk, Beer, Fruit, and all raw and obstructing food. If you knew how to use Elder, you would have an excellent Purge to free your Body from the Hydropical water, because the Juyce of the Roots of Elder purgeth Hydropical Persons exceedingly: But 'tis not so safe to use it, unless you do it with great caution, because a very little of it taken inwardly purgeth both by stool and vomit, like Antimony. Half a nutshel full may suffice. The like effect you'll find in Elder-buds boiled, and then dressed with Oyl and Vineger like a Salad, eating a very little of it. But I advise you not to use too much of it; else it will cast you into great faintness. The Juyce of the Roots of blew Lillies hath the like vertue, but is likewise to be used with great discretion.

Otherwise

Otherwise take Earth-worms, and having wash'd them clean in Wine,, reduce them to powder, and take off it for some mornings the weight off half a drachm in warm Broath or Wine, mixing a little Rhubarb with it..

The Swelling of your Leggs may be removed by heating some Tiles and sprinkling them with Wine, and clapping them about your Leggs to make them sweat. For a swelled Groin, take warm Milk, wherein *Calamus Aromaticus* hath been boiled, and sweeten it well with Sugar, and apply it.

CHAP. VII.

Of all sorts of Fluxes ; as also the Tenasmus, or vain endeavour of going to stool ; and the Hemorrhoid or Piles, and Marisca's or sore Fundaments.

IN Wars and Camps, Bloody and other Fluxes are very frequent, caused by an irregular and ill dyet, and

and these Distempers, especially the Bloody Flux, carry away abundance of Men. Where it is to be noted, that the Bloody Flux is infectious, and very catching.

Common Fluxes and Loosenesses may easily be cured. Amongst other Remedies, take burnt Harts-horn, and take it often in Broath; or pulverise Medlar-kernels, and take of the powder in Broath likewise. Also an Electuary made of Quinces and Sloes will cure them. The same does Nutmeg, and the Roots of Tormentil, Snakeweed, or the Roots of Cinquefoil, baked in Eggs, and eaten. Likewise the Seed of Dock, broad Plantain; item *Terra Sigillata*, or *Bolus Armenus*, and Wheaten-bread coming hot out of the oven, and dipt in red Wine, and eaten. Again, Mastick pulverised, and put into Almon-milk, red Wine, or Broath, the weight of a drachm, is good for such a Looseness especially as comes from indigestion; adding a little Nutmeg or Galingal to it. Oaken-leaves also, or the Rinds
of

of Pear-trees, with a little Mace boiled in Wine, and drunk, cureth common Fluxes. Again, *Bursa Pastoris* (Shepherds-Purse) boiled in Steel-water with a little Coriander, and drunk, is also very good; and so are Crasfishes boiled in Vinegar, and the scales beaten to powder, taking an drachm of it mornings and evenings, either in red Wine, or in Broath wherein red-hot Steel hath been several times quenched. *Hawes* also boiled, and made into a thick Electuary, and strained, is beneficial, if taken in the morning fasting, and an hour or so before supper, the quantity of a Walnut.

Besides, take new Milk with its Cream on it, quench therein divers times red-hot Pebble-stones, so that the Milk may grow hot of it; then mix with it two or three well-beaten Yolks of Eggs, two ounces of Sugar, melting in it an ounce and an half of the Suet of a Deer or Stag, and about half an ounce of *Album-gracum*, using it for a Clyster, which cleanseth and
healeth

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healeth the Guts, and allays the sharpness of the Blood and other corrosive humors, that annoy the Bowels.

But take heed of not stopping too suddenly the Bloody Flux, or any other Laske; for if you do, the annoyance will remain in the Body, and cause Impostumes, Difficulty of breathing, and other dangerous Distempers. Wherefore consult with thy strength, and if that be considerable, make not too much hast; yet keep a bridle upon it, so as to be able to stop it when there is need. Mean time, if it be without a Fever or heat, you may do much with new Milk, drinking it also mornings and evenings warm, some red-hot Stones having been quenched therein, and some Sugar mixed with it, to prevent curdling in your Stomach. This Medicine was known to the famous *Grecian* Physitians, *Aetius*, *Alexander Tralianus*, and *Galenus* himself, *l. 10. de Simpl. Med. facult.* If you add a little *Album-gracum* to it, 'twill be the better. I have my self done much good with

with thus prepared Milk, but then there must be no Fever; which if there be, you'll easily perceive it by a great thirst, quick pulse, hot hands, and little sleep, &c. For, Bloody Fluxes are not wont to be accompanied with shaking Fevers, but only with hot fits, which spend more of the Patients strength in an hour, than shaking Agues in several days; which is to be well heeded.

Eggs boiled hard in Vineger, and given to the Patient, that is troubled either with the Bloody or any other Flux, it will be stopped.

The Roots of Tormentil, or of Snake-weed pulverised, and this powder drunk in a convenient vehicle, the weight of a drachm, is one of the most approved remedies against these Fluxes; Tormentil-roots being very powerful not only to stop them, but also to take away their catching malignity.

The Moss that grows on wild Rose-shrubs, reduced to powder, and taken in Wine, wherein have been
boiled

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boiled the husks of Acorns, is an approved remedy in this case.

Scrape red Lead or Rudle, such as Carpenters mark their lines with, put it into Wine or Broath, wherein hath been boil'd the broader kind of Plantain and Tormentil-roots; or take it in an Egg.

Hares-blood dried, and taken inwardly, is also a tried Medicine in this Distemper. *Item*, open a new-laid Egg, take out the white, and fill it up with Nutmeg, or the pulverised root of Tormentil or of Snake-weed, and give it the Patient to eat; or put into it some pulverised Blood-stone, and it will do good.

I have used with good success the Seed of the broader Plantain, grossly beaten, and roasted in an Egg, against the Flux; and I know it also to have been beneficially used against the Bloody Flux.

Take of Mummy, a little Mastick, Bol Armeniac, *Sanguis Draconis*, mix them together, and make a powder of them, and take of it in a convenient liquor,

liquor, the weight of a drachm, once or twice a day.

Take Rye-biscuit, and boil it in water with Coriander and the roots of Tormentil or of Cranes-bill; quench some Steel in it once or twice, and give of it to the Patient to drink.

Make a Decoction of Shepherds-purse and Meadow-sweet, in water and wine, and now and then drink of it.

Burn live Crafishes in an earthen Pipkin well-closed, until they be so burnt as to be reduced to powder; of which give to the Patient mornings and evenings a thimble-full or two in a convenient liquor.

A dried Liver of a sucking Lamb, or of any other such Animal, is very good in this case, provided such a Liver, before 'tis dried, be boiled in Vineger. Let the Patient take a drachm of it twice a day. Also the Blood of a Lamb, or of a Hind, both dried, will have here a good effect.

Take a Pigeon, Wood-cock, or Partridge, and having drawn any of them,

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them, fill them with Mastic and a little Nutmeg, and so roſt them on a ſpit, and whilſt they are roſting, baſte them with red wine, and ſo let them roſt till they grow ſo hard as will make them pulverable; then reduce them or any of them to powder, and take a ſpoonful of it at a time in warm broth.

The higheſt Experiment in this caſe is *Crocus Martis*, taken in the Juyce of the broader kind of Plantain, or in a Pulſe of red Beans, or Rice-broath; the doſe is half a dram. But when the pain is very great, you may then add to it ſome opiat Medicine, as of the *Trochiſques de Garabe*, or one onely grain of *Laudanum Opiatum*. And give the Patient now and then a little new-made Treacle, or mix with it a few grains of the *Confection of Archigenes*; for of ſuch Medicaments a Field-Apotheque is not wont to be deſtitute.

For the Patients ordinary drink, boil water, and in it Coriander, dried Sloes, dried ſlices of Quinces, burnt

G

Harts-

Hartshorn, Mastic, Nutmeg, or any one of these; putting to it some of the roots of Snake-weed, Tormentil, or such like adstringent roots. Of this water the Patient may drink according as his necessity shall require.

The red Juyce of Quinces, boiled up without Sugar, is also much to be commended in this case, for strengthening the bowels, two or three spoonfuls of it being taken at a time, and that twice a day.

In many places a drink is made of Sloes, *Pilosella* or Mouse-ear, and Juniper-berries, infusing them all in common water, and letting them ferment together. This yields a pleasant acid drink, allaying the violence of the Flux, and quenching thirst with all.

The Rich may make Granat or Quince-wine. But I have here undertaken to deliver such things, as are parable and cheap for the poor common Souldier.

I am sorry, that in the Field there is no conveniency of administering Clysters:

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Clysters : For, though I prescribe none without great necessity; yet Clysters being of great benefit in Diseases of the bowels; they being to them like Plaisters, I cannot but recommend in this Distemper Clysters of Milk, wherein Pebble-stones have been several times quenched, mixing a little of the melted suet of a Stag or Hind, without any oyl or other fat. I remember, I had once a Patient of quality, that had about an hundred stools within twenty four hours, who by the use of such Clysters, once or twice applied, was fully restored. The cause whereof is, that the Milk washes the bowels, and clears them of the sharp humors that annoy them; moreover, it is healing and repairing, by reason of the Pebbles quenched therein. The Sugar is abstersive, and helps to clean the injured places. The Fat sticks to the parts annoyed, to defend them from being further hurt by the subsequent humors, which running down over it, can find no stay there, and consequently cause no more hurt to those parts.

G 2

Yet

Yet must you not put in any greasie Fat, or any Oyl of Olives, because they hinder healing; and all Oyl, except that of Linseed, Poppies, Hemp and Almonds, is very sharp; and you will find, that if any drop of Oyl off Olives should chance to fall into your eye, no Juyce of Orenge or Limons is so strong as to exceed the acrimony of that Oyl. But of this Oyl more will be said in the next Chapter, to which I therefore refer you. If you would have your Clyster yet milder and more sanative, you may beat a yolk or two of new-laid Eggs, and mix them with it; though I have contented my self with the Ingredients before mention'd, and found great benefit thereby. Else you may in this case use for a Clyster the *Cremor hørdei*, mixt with yolks of Eggs beaten in it; which is also very good to wash out the bowels.

Here is no conveniency of making much use of Apothecary-shops; else many things might be prescribed to lay upon the belly and the navil, as
also

also divers fermentations, and stomachical unguents. You may therefore content your self with those plain and easily parable means, already deliver'd, and be thankful to God for them.

But then you are also to think upon means to obviate Symptoms of this Distemper, and particularly *Drought*, which is wont very much to torment people in this Disease. 'Tis true, Acid things do quench thirst, but they cannot be used boldly, and therefore you must use them with great discretion and wariness. And as for sweet things, they usually increase thirst, and do easily corrupt, and turn into gall. Wherefore give to the Patient preserved Currans; or, if fresh ones be in season, mix a quantity of them with Honey or Sugar, and give him of it to eat upon white-Bread and Butter. Or plump dried Black-cherries, or dried Damascene-prunes, in half Wine and half Water, and let him hold and squeeze them in his mouth. Or, if you can, mingle some Almond-milk with Chalybeat-

G 3 water,

water, and let him drink thereof; and this is both meat and drink. Or let him drink water, wherein Coriander and roots of Tormentil have been boiled. Or boil in water dried slices of Quinces, roots of *Bistorta* or Snake-weed, and burnt Harts-horn, put into it a tosted crust of Rye-bread rubb'd with Nutmeg, but let it not lye in it above a quarter of an hour, lest the water should thicken and become viscous. Marmelat also of Quinces, Black-cherries, and Sloes, is proper in this case, giving the Patient a slice of it to hold upon his tongue, and so to swallow it down.

Further, you must learn how to remedy a *Tenasmus*, which is more irksome to the Patient, and occasions more trouble to the Physitian, than the Bloody-flux it self, since it night and day painfully provokes the poor Patient to go to stool, and yet to no purpose. For this I have used many remedies, but found almost nothing more beneficial, than Fomentations of this nature following: Take *Potentilla*

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tilla (wild Tanfie Silver-weed) Knot-grass, Mullein, and Oak-leaves, of each as much as you please, put them into two linnen bags, and let them boil in Smiths-water, wherein much Iron hath been quenched: Squeeze out these bags between two boards, and let them be held alternately to the *anus*, as hot as can be endured. Black Pitch, such as is found on Larch and Fir-trees, put upon a heated fire-shovel, and the fundament held over it, is also a good remedy; and so is Turpentine, used after the same manner.

Again, take a black well-burnt Brick out of the hearth, heat it thoroughly, and wet it with sharp Vinegar, and wrap it about with a linnen cloth, and let the Patient sit on it as hot as he can endure it. This was the Experiment and Remedy of old *Aetius*; but he reduced the Brick to powder, and by boiling it in Vinegar, reduced it to a pulse, and so put it into a linnen rag, and applied it to the fundament. You

may chuse which you please of the two.

Milk-Clysters, such as above prescribed, would also be good, but that 'tis not safe with Clyster-pipes to vex the *anus*, which is already sore enough. Yet you may give a Suppository of Deers-suet mixt with some Oyl of Mullein. And the grey *Diapompholox*, or the white Camphire-unguent, or the like, mixt with it, would not be improper in this case.

If there be a Falling down of the fundament, then let it often take in the fumes of the above-mention'd Herbs, adding to them the beaten stalks of Sloe-shrubs, and those of red Roses, as also Mouse-ear, and Mugwort. The outer bark of Elder, and of Shepherds-purse, doth also well with it. But above all things keep the Patient warm, and let by no means any of the abovesaid steams grow cold on the sore part.

Make also a Decoction of Garlick, and pour it hot into your close-stool, let the Patient sit upon it, to receive the

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the hot steams. Besides, put some burnt Hartshorn in a linnen cloth, and so strew it upon the fundament, by little and little to draw it up. Or heat an Oaken-board very well, and cover it over with Stags-suet, and let the Patient sit upon it whilst 'tis hot. Put *Colophonium* or the Rosin of Pine-tree upon a heated Iron, and let the Patient by holding his fundament over it take in the steams thereof. Anoint also the part with Butter, in which Onions have been boiled; and strew upon it *Album-graecum* very finely pulverised. You may also make a Salve of Ceruse, Bol Armeniack, Dragons-blood, Stags-suet, Blood-stone, Oyl of Myrrh, or Butter in which first hath been boiled broad Plantain, Mullein, or wild Tanfie Silver-weed; and with this anoint the fundament.

As for the *Marisca's*, which do torment Men especially, they may be cured with Oyl of Eggs, Salve of red Hounds-tongue, as also with the *Unguentum Populeum*, or with Butter
stirr'd

stirr'd up and down in a Leaden Mortar, till it turn grey or blackish. Lett the Patient drink also of *Scrophularia* or Fig-wort, infused in his drink, this being a specific for that evil. Also the Oyl of Mullein, Elder-blossoms, Water-lilly, and White-lillies, is an excellent remedy for it, a rag dipped therein being laid upon the part affected. To use scarifying on the lower part of the back-bone, is also very good, though it be very painful.

If the Hæmorrhoid-vein bleed in a convenient time, and do not over-bleed, it is an exceeding good thing, and preserves from many Diseases, as the Inflammation of the Lungs, Stitches of the sides, the Leprosie, Melancholly, Quartans, and the like. If the same vein should bleed in one that is mad, or disturbed in his mind, or in one that is troubled with the Inflammation of the Kidneys, these Distempers would thereby be allayed. But if it should bleed too often and too violently, it weakens much, causeth

causeth a pale colour and the Dropsie. My Collegues and I have often open'd it by Leeches, and thereby found great benefit. But in case it should exceed in bleeding, you must deal with it as you do with the Bloody Flux, and give to the Patient *Terra Sigillata*, *Bol Armeniack*, burnt Harts-horn, and the like adstringent things. If you can get some teeth of the *Hippo-potamus*, rasp it into powder, and drink some of it in red or white wine; it stops all bleeding, of the nose, mouth, guts, fundament, hæmorrhoids, the matrix, especially the bleeding of Women after delivery.

Here is also very useful the express'd Juyce of Plantain, Shepherds-purse, and of the tender leaves of Raspberries, or Brambles, infused in wine and drunk.

CHAP. VIII.

*Of Pestilential Boyls, Ulcers, Carbuncles,
and other venomous Sores.*

Above I have prescribed some, both Preservative and Curative, Medicines against the Plague, reserving for this place the *Chirurgical* means, to be used against that Distemper, thinking it best to discourse of them together in a place apart.

Concerning then the Pestilential Bubo's and Sores, that rise behind the Ears, under the Arms, and about the Groin, the Cure of them consists chiefly in this, that they be ripen'd with speed; for which end are to be employed meer emollient and suppurating things. Yet are you to know to distinguish between Boyls, there being some of them that are not venomous, especially in young people; and they may be hereby discerned, that at the touch they cause

no

no pain, whereas the Pestilential ones are very painful; which are also discover'd by the accompanying venomous Feaver, and other pernicious Symptoms. And of these latter great care must be had to bring them out, and to a speedy maturation, because those that lye deep are very dangerous.

Some there have been, that have used Scarification, and even Vesicatories, thereby thinking to fetch out the venom. Others have pierced the Sores through, about a hands breadth beneath the Sores, putting the root of black Helebores into them, thereby to draw out the venomous matter. But such means have rather irritated the evil, caused great pains, and put the Patient to greater danger.

Wherefore I judge nothing safer and better, than, as I was intimating, to use *Emollients*. Take then of the common Diachylon, and lay it upon the invenom'd Boils; and besides make a pulse of these herbs, viz. of Camomile, Mallows, Melilot, Dill, Line.

Line-feed, Fenu-greek, Althæa, the roots of White Lillies, as also salve of Althæa, Oyl of Camomile and Lillies, mixing a little Saffron with it, and some Oyl of Scorpions. Of this pulse make some warm, and lay it over the Diachylon upon the Sore.

Or, boil Wheaten-bread in the broath of Mallows and Camomile, till it grow soft, then saffron it over, and mix March-mallows-salve with it, and lay it on. Or make a Plaister of Figgs and rosted Onions; or, make a pulse of Bread-leaven, Honey, yolks of Eggs, and the juyce of Onions, adding a little Turpentine to it, and so lay it on.

If the meer common *Diachylon* be not sufficient, use the Plaister *Diachylon cum gummis* or *de Mucilaginis*, or mix a Melilot-plaister with the common *Diachylon*, make a pulse of it with Oyl of Lillies, mixing a little Oyl of Scorpions with it, and so lay it on.

In laying on of Treacle, I have this consideration, that Treacle hinders

ders putrefaction, which is the thing here most of all desired, because all maturation, which here is a reducing the Sore to suppuration, is a kind of putrefaction.

Here also the Plaister call'd *Basilicon* is of good use; likewise the *Ceratum Oesipum Philagrii* and *Mesua*, which *Cerata* are made of *Gummi Ammoniac*, *Bdellium*, *Turpentine*, liquid *Styrax*, Goose-grease, Marrow of Cows-bones and *Oesipum*, and a little Saffron. Some take a dried Toad, and lay it upon the boyl, to draw out the venom.

Now when the Sores are softned and ripe, and yet break not of themselves, they are to be opened with a lancet; and if you have to do with Persons so delicate that they cannot endure a lancet, you may make use of the *Lapis Septicus* or Corrosive-stone, which opens without pain, but is more slow. Mean time beware of opening the Sores too soon; for then they will turn to a hard swelling, which the Patient will not wear off whilst he liveth.

There

There are also some Plague-sores that never break, but wear away by sweat. Yet if they should leave behind some hardness, you may, when the danger is past and the sickness overcome, make use of some fomentations of Melilot, Camomile, March-mallows, Mullein and such like: You may also take of the Gum, call'd *Tacamahaca*, and mix with it a Plaister of Melilot or Diachylon, and lay it on.

The Sores being open'd, they must be kept open with small pellets, (called by the *Germans*, *Quellmaïsseln*,) dipt in a Salve made for this purpose out of fresh Butter, Yolks of Eggs, and Turpentine, well mixt together cold.

But it happens sometimes, that such *Bubo's*, by reason of the venomous matter, do eat in, or grow fistulous, or make matter-baggs, in which the matter settles. In this case you must use the *Unguentum fuscum*, *Apostolicum*, or the *Ægyptiacum*: Or make the following water, to be squirted into such Sores; namely of *Celondine*, *Scordium*
or

or Water-germander, *Carduus-benedictus*, Centory, or the like Herbs, together with Tormentil and Whitlow-grass; all boiled in wine. If the Sores be very ill, you may boil with it some quick Brimstone, and Myrrh, and, if need be, mix with it a little fine Verdigrease. Or, take Honey four ounces and an half, a quarter of an ounce of *Aloes Epatica*, a drachm of Salt, an ounce and a half of Scordium, mix all well together, and keep it for use; and when you have occasion for any of it, then dissolve it in wine, and spirt it in. Meantime, enlarge the opening of the Boils with the aforesaid pellets, that so the matter may have vent enough, and come away without any impediment.

The Unguent of *Ulysses Aldrovandus* is also very good, for the clearing of such Sores; and 'tis made of Oyl of Roses, the Juyce of broad Plantain, sharp-pointed Dock, Centory, and Night-shade, with a little Litharge, burnt Lead, and prepared Camphir.

H

Instead

Instead of the Juyce of Night-shade: you may take that of Cumfry.

As for the Sores call'd *Anthraxes*, and those they call Carbuncles, great care must be taken to break them soon, and to heal them slowly, that so the poisonous matter may all come away. They ripen and break soonest by fatty (but not hot) Plaisters and Unguents; especially such as are made of butter, leaven, yolks of Eggs and Honey; or if you mix together Turpentine, *Unguentum Populeum*, or Rose-salve mixt with yolks of Eggs, or the *Unguentum Anodynum* mixt with the Ointment of Hounds-tongue, and laid on it. It must be often refreshed, because such hot Sores and Ulcers, before they break, do so draw, waste, and, as 'twere, lick up those fatnesses, that sometimes of the plaisters, that have lain on them, there remains nothing but the bare ragg. The *Emplastrum Basilicon*, or the common yellow drawing plaister, is here the most useful.

You must also surround the *Anthraxes*

thrax with good defensives; for if it invade the neighbouring part never so little, it will soon make a large *halo* or circle, which will at length separate from the sound, and fall away like an *escarre*. For such defensives make use of *Album Camphe-ratum*, or the *Unguentum de Liqui-ritia*, known by our people under the name of *Dr. Mindereus his Lico-rish-ointment*. Item the *Unguentum de Lithargyro*; or the *Unguentum Fovis*, prepared of fresh Butter, with *Thla-spi minus*, or Bowyers Mustard, (other-wise Narrow-leaved wild Cresses,) Cranes-bill, Elder, Poppy, Vervain, and some shaved Licorish. Some take nothing but Vervain and the fresh leaves of Henbane, beaten together, and the Juyce strained, and so used. Of this Ointment you may make much with confidence; for it will do you very good service in Inflam-mations, especially in the case of the swelling of the groins.

Amongst the approved Medicines for this purpose, may deservedly be

reckoned the plaister made of Soot ; which is thus to be prepared: Take of the finest Chimney-foot one ounce and a quarter ; of Leaven, Turpentine and fresh Butter, *ana* one ounce ; of Venetian Soap an ounce and a half ; two yolks of Eggs ; of Treacle and Mithridate, *ana* a quarter of an ounce :: Beat all these together in a mortar, and so reduce it to a paste, and then use it plaister-wise.

When the *Anthrax* or the Car-buncle is broken, you must then handle it very gently and discreetly, using only the above-described Egg-salve, putting it into the opening, and covering the Sore only with the common yellow drawing plaister, or the plaister prepared of Oyl, Wax, and Rosin, or Turpentine. Let the matter work out well, and when you are sure that 'tis very clean, and have a mind to consolidate it, make only use of *Triapharmacon*, vulgarly call'd the brown *Diachylon* ; you may besides put into it some of the *Unguentum de Tutia*, and that of the *Diapompholox* and

and one of the plaisters of them upon it. The *Ulme*-plaister also, made of Oyl and Ceruse, heals also very well. But be very careful, lest any of the matter remain lurking in the Ulcer. If here and there any should be found yet remaining, as often happens, then make use of the *Emplastrum Apostolorum*. But if you can prepare the *Diapalma*, otherwise called *Diacalci-thros*, make use of that. I am wont to call it the *Fistula*-plaister, because it doth not easily suffer *Fistula's* to stink, but keeps them clean and sweet. Such a plaister is also that, which is called *Isis*, to be found in *Galen*, and performing the same thing. They are both to be found in the *Augustan* Dispensatory, together with the way of preparing them.

Now what concerns *Old Sores*; which many are troubled with, in their Leggs especially, because the humors of the body usually settle there; you must above all things be careful to keep them clean, and to that end wash them, at least once a

H 3 day,

day, with your own urine: Or boil *Carduus-benedictus*, Egrimony, Plantain, and roots of Tormentil, in half small meath and half wine, and wash the Ulcer with it, as often as you dress it. Among the common plaisters for such evils is the brawn *Diachylum* one of the best. Else you may prepare this Ointment which follows: Take the middle rind of Elder, and St. Johns-wort, boil them in oyl, putting a little wine to it, and so let it boil up till the wine be boiled away; then take it off from the fire, and let it cool; this done, stir a little Turpentine amongst it, and a yolk or two of Eggs, according as you make a greater or lesser quantity; mixing with it a little Allum, and Vitriol, (the white is the best) stir all well together, and apply it to the Ulcer, and make a bandage, and cover it as usually. For a good Drawing-plaister, take Rosin, Beewax and Oyl-olive; the quantity of the Rosin must be but the half of the Wax: Let them melt together, and stir

stir amongst it some Tartar exquisitly powder'd. Use not much of fatty things to such Ulcers. I have had under my care such Ulcers, that were to be healed with only dry things, as with strewing in of *Crocus Martis*, and the red Earth of Vitriol, of which hereafter.

For this reason the antient Physicians and Chirurgions invented a dry Stone, which they kept so secret, that they called it *Lapis Philosophorum*; which is easily made, as followeth: Take Allum, Hungarian Vitriol, of each one pound; beat them to powder, and mix them well together; then put all into a glased earthen pot, and pour upon it two quarts of water, boil them together, and stir them continually with a *Spatula*, taking off the scum: When 'tis boiled in, put to it an ounce of *Bolus Armenus*, an ounce and a half of Ceruse, a quarter of an ounce of Camphir, all finely powder'd, stirring it well about; lastly put it to a quart of sharp Vineger, and boil all together to a stony

consistence, which reduce to powder, and of it strew a little into the Ulcer, or let some of it dissolve in a convenient liquor, and wash the Ulcer therewith, or dip some linnen raggs in it, and lay it over the place.

'Tis also prepared this way: Take green and white Vitriol, of each a drachm; of *Lapis calaminaris*, Ceruse, Bol Armeniac, of each two ounces and a half; of Sal Armoniac an ounce. Beat them all to powder, put them in an earthen pot, mingle and stir them together in Vineger, to be a thick pulse; then put your pot upon a hot charcoal-fire, to let it grow red hot, so as that the matter be reduced to a stony consistence, of which dissolve about half an ounce in half a pint of water, dip linnen raggs into it, and put it twice a day upon the Ulcer. 'Tis also very good for purulent Breasts.

I was speaking above of *Lavements*: These you may prepare of all sorts of Wound-herbs, by boiling Confound, Bugle, Fluellin, Ground-ivy, Yarrow, Snake-weed, Avens, Arsmart;

Arsmart ; you may also, against putrefaction and the settling of purulent matter, mix sometimes a little Myrrh, or *Aloes Epatica*, Frankincense, Mastick, quick Brimstone, Camphir, Niter, Allum, Vitriol, or the like. Nor is it need to bind your self to this or that precisely, but you may take such of them as you can get.

I have a peculiar Ulcer-salve, which I call *Unguentum Decameron*, being made of ten sorts of Juices. Of these the principal is the Juice of *Persicaria*, (Arsmart ;) to which are added the Juices of Groundsel, Tobacco, Yarrow, sharp-pointed Dock, Cranesbill, broad and pointed Plantain, Centory, St. Johns-wort, and Celandine. These Juices must be well strained, and then kept for some days in glasses or glased vessels to settle ; and then very gently pour off the clear from the sediment. Which done, boil them with fresh butter, and some good Licorish newly scraped, as also some Tormentil and Cumfrey, adding a little red Hounds-tongue salve and
Oyl

Oyl of Myrrh, and Deer-suet: Let all be boiled together, till the cracking cease, and the Juice be boiled in. Then strain it through a linnen cloth, and add to it some Venice-Turpentine, Gum *Elemi* and a little Bees-wax, both the latter melted each a part. Of the Wax there needs no more than to bring the Salve to a due consistence. Then is this Unguent prepared, to which may be added a little refined Verdigrease, which will make it perfect. It is of great efficacy in foul wounds, for both cleansing and healing; as experience will shew.

A Chirurgion, in meeting with Ulcers, is to observe well the purulent matter that issues, since he may from thence learn the condition of the evil, whether it proceed from foul blood, gall, corrupt phlegm, or adust melancholy. If the evil grow worse, and the humors of the body force their way copiously thorow, then beware, and withall exhort the Patient to purge, or to sweat with taking some Sassafras, or the like.

The

The *Sanies* or matter that is thick, white, and well digested, is the best; but when there runs but a sharp water out of the Ulcer, this is not good, and is withall painful. Which to obviate, you must use Litharge, Cerusse, and the like; putting also beaten Lead upon the place, and cleansing the fistulat holes with Lead-oyl, qualifying its sharpness with Oyl of Eggs. This Lead-oyl is made two ways, the one out of Cerusse, which is green; the other out of Litharge, which is yellow or reddish. Both are prepared with Vineger.

Boil *Celondine* in wine, and with this wine you may also cleanse the Ulcer with good effect. Mix afterwards a drachm of Verdigrease with about four ounces of the Juyce of Ground-Ivy; use it with wiecks or raggs dipt therein for the foul Ulcer-holes.

Burn Oyster shells to powder, and use it for old Ulcers that need cleansing, which this powder will well perform by reason of the Salt that is in

in those shells. You may sometimes have occasion also of the *Mercurius præcipitatus*, or the *Mercurius dulcis Cosmeticus*. If you can prepare this, you have a good Remedy.

As for hard Knobs and Boyls, they commonly owing their rise to the Venereal Disease are not so proper for this place. However you may make a plaister against such Knobs of the phlegm of Althæa or Marsh-mallows, Gummi Ammoniac, Galbanum, Turpentine, Myrrh, Missel-toe of the oak, mixing a little Bee-wax therewith and some Oyl of Earth-worms. If you will have it stronger, mix with it Gumm Elemi, Tacamahaca or Carama. But this can only be compassed by the rich men; the poor must be content with the Melilot-plaister, mixt with Saffron and the Oyl of Mullain or Dill. You may also prepare for such Patients a Salve of Fox-oyl, Dill-oyl, Turpentine, Mangrease, and the like, mixing therewith some Oyl of Earth-worms and the Oyl of Mullain-flowers, Camomill and white Lillies.

CHAP..

CHAP. IX.

Of the Chirurgical means of staunching blood, of wound-balsoms and plaisters, of wound-drinks, and remedies for Burnings.

THis is the most necessary Chapter of this whole Tract. For, although in every Camp, yea in every Regiment, and even in every Company there ought to be one or more Chirurgions; yet because in a battle, or the storming of a strong-hold, there may be wounded a very great number of men, who, by reason of the multitude, cannot all be dressed by the Chirurgions, every common Soldier, that is sound and un-hurt, is obliged to assist his fellow, considering it may soon be his own case.

In the first place then, refresh thy fellow, that is wounded, with wine, cold water, vinegar, or the like; then place him in a right posture.

For

For, if the wounds be in the head or about the breast, you ought to lay him high with his head and shoulders, that so the blood may sink down from the places wounded. If his legg be hurt, put it so that it may not hang downwards, and thereby the afflux from the body be prevented, which otherwise might cause a tumour. If the wounds be in the middle of the body, then place him so, that, if possible, he may lye somewhat hollow with his back.

This done, wash the wound very gently, (so as not to anger it,) with meer wine, or even with pure common water, only with a very little salt cast into it; or with the Patients own urine; and then dry it with lint of long-worn linnen, without much stirring in the wound, for fear of making the veins bleed again.

If any one do bleed so copiously, that it is not easily stopp'd, and the Patient is in danger, then receive of his blood in an Iron pan, and letting it run about therein, hold it over the
fire

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fire till it be dry and between your fingers friable to powder; of which strew some into the bleeding wound, and it will stop it. But of this case more hereafter.

The wound being cleansed, and the bleeding stayed, take fine linnen-raggs, burn them as you are wont to do for tinder, and quench it in Oyl of Olives; and put some of it into the wound. If you have no plaister at hand, take a slice of unsalted lard and lay it on. If that be also wanting, dip a pledget of linnen-raggs in warm wine, and being wrung out very dry, lay it upon the wound, and a dry bandage over it, that so the moist pledget may long keep warm. Though in such wounds, as are apt to bleed much, warm bandages are often to be avoided, and sometimes (but with singular care and discretion) cold bandages to be used, if the hurt be not in the brain, breast or bowels. Whence old *Hippocrates* hath this Aphorism: *Frigido verò in iis locis utendum, unde sanguis aut fluit aut fluxurus est.*
Yet

Yet this must be done with great caution, lest in the place affected there should follow a Gangrene.

After this, take Oyl of Olives and Wine, beat them well together, and warm the mixture; dip in it linnen pledgets, wring them dry, and lay them on warm with a dry bandage over it. This must be done once every hour or every two hours, nor let this care and labour seem irksome to you, for it will have a good effect.

This Dress is almost the only thing, which the *Knights of Malta* make use of at Sea to heal their wounds; for the Oyl allays the pain and the swelling, as the Wine cleanseth, and these two together cause healing. Whence the *Samaritan* in the Gospel is said to have poured only Oyl and Wine into the wounds of him, that was fallen among Thieves. You may therefore make out of these two a Wound-salve that may be equivalent to almost every common Wound-balsom, preparing it thus:

Take one part of Oyl-olive, and
two

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two parts of Wine, boil them together till the Wine be boiled in, and the Oyl, when any is thrown into the fire, cracks no more; and you have a Wound-oyl according to wish: Put of it with fine linnen shavings into the wound, and it will, for a plain remedy, do marvels.

You may also melt Lard unsalted, mix it with Honey and Rye-flower, and so make it into a Salve, which, though plain and simple, may, when put upon the wound, have as good an effect, as many Plaisters that are in great esteem.

Otherwise, for a very good Wound-salve, take of the best *Aloes* cleanly pulverised the weight of a ducat, mingle and stir it with half an ounce of fine honey; melt afterwards by it self half an ounce of Deer-suet, and stir it among the other Ingredients: Thus you have a good Salve against the putrefaction of wounds, and for the asswaging of their pains, as also for healing them, if you duely apply it to the wound: If you'll add to it

a little Cyprus-Turpentin with the yolk of an Egg, you may.

The black Wheel-grease in a time of need is also a good Wound-salve, and is only despised because of its plainness. When you use it, lay only over it the leaves of Snake-weed, or of pointed Plantain.

But by all means keep the wound clean, and let not many look into it, for fear they should by their breath annoy it, some being fasting, others having eaten one thing, others another. But especially admit not many women, when you open the wound for cleansing and dressing it. But above all things take care, to exclude the Air as much as is possible from the open'd wound, especially if any Artery or Nerve be hurt. Take notice, that Carpenters and Joyners, when they have hurt themselves, do almost by this only means of well closing their wounds and keeping out the Air, heal themselves. They take a very thin chip, and lay upon it some of the glue, wherewith they joyn together:

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ther the boards of their work, and this they apply to the wound, first well cleansed, and let it lye on, till it fall off of it self, and the wound is healed. But this will not do in case any Bones be hurt.

Item, take Honey and the Dust-flower of the Mills, fresh Butter and Bol-armeniack, and knead it well together, without any fire, until it be as thick as a Plaister, and this laid on, is very good.

Item, take Cumphrey well cleansed, cut it small, add to it one or two of the Vulnerary Herbs, such as you may meet with in the field, as *Pyrola* or Winter-green, Yarrow, Plantain, Fluellin, Orpin, Confound, Sanicle, Bugle, &c. Boil this in Linseed-oyl and a little Wine, until the Wine is boiled away; and this being strained, put to it some raw Honey and one or two well beaten yolks of Eggs, (according to the quantity you make) and a little Turpentin, and so thrust it, with some Hemp or Flax dipt in it, into the wound.

Lime-water is one of the simplest or plainest remedies, but healeth admirably well. Take only some un-slaked Lime, pour on it clear water, and let it stand upon it till the Lime be fallen to the bottom: Wash the wound with it, especially such as are old running Sores, and you'll find a wonderful effect.

These plain means may be used, in case you want a Chirurgion, taking the assistance of your Fellow-souldier in the application; though those very remedies may challenge a place among the most chargeable ones, prescribed and applied by Masters. And provided the Chirurgion do not under-value these my plain and cheap remedies, but receive them thankfully, I am ready here to teach him some ways, hitherto concealed by me, which I scruple to keep any longer from publick knowledge.

Know then first, that to a Physitian belongs also the knowledge of Chirurgury, as a third part of the Art of Medicine, the other two being the
Pharma-

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Pharmaceutica, prescribing Medicines for inward Diseases, and the *Dietetica*, ordering the Patients Diet and other necessaries. I have my self, whilst I practised Physick, dressed in Camps many wounds with my own hands and cured them, carrying always my Chirurgical *apparatus* about me, without any disparagement to my Profession; imitating herein the Examples, above-alledged, of *Podalirius* and *Machaon*, two of the chief Physitians of the Antients in the Army before *Troy*, who were not at all ashamed to practise Chirurgery, and to attend the cure of wounded Soldiers.

First of all then, consider well, whether the wound be mortal or no. Next, what limb or part it is that hath received the wound: The wounds in the Head are commonly the most dangerous, by reason of the Symptoms incident to them, as the Apoplexy, Falling Sickness or other Convulsions, the Palsey and Laming of the limbs by reason of the hurt

nerves, as also Phrensy, Loss of Hearing and Speech, &c. which are wont to be consequent, according as the respective nerves have been struck or wounded. If the Breast be any where wounded, great care also is to be had, and the means must be directed to prevent purulency (which that place, by reason of the heat there, is subject to,) and to heal the *pleura* or the inner membrane of the ribs; the like is to be done concerning the diaphragme, &c.

You ought also to observe, what kind of wound it is, you have to do with, whether any bone, any nerve, or artery be hurt; whether it be a meer flesh-wound, and the like. If it be a gaping wound, you must, if it hath taken cold from the Air, bath it with warm wine, and keep it very close; and make use of the strong astringent plaister, prepared of Rosin, Gummi Elemi, Turpentin, Pitch, with some Mastick, Frankincense, *Sarcocolla*, as also some Blood-stone, Mummy, and *Crocus Martis* mixt there-

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therewith, and keep all on carefully with a good bandage, which is a great matter in all wounds. For, some months since, I had a Patient under my cure, whose Skull in the place of one of its futures was sever'd, so as that I found a considerable space between the two parts separated. I order'd a Chirurgion of my particular acquaintance to draw those parts forcibly together with good bandages; which being well done, I caused his hair to be shorn away, and an astringent plaister to be applied, which was almost like a Rupture-plaister; whereby in three or four weeks, to the admiration of many, my Patient was perfectly healed. This plaister was the *Ceratum ex pelle arietina*, mixt with *Gumm Elemi*, and with a little *Ceratum de Betonica*.

You must also be provided with good Blood-staunching remedies. The common ones are, *Bol-armeniack*, *Sheep-trickles*, *Blood-stone*, *Tragacanth*. *Terra Sigillata*, *Mill-dust*, *Hares-hair*, *Peacocks-dung*, &c. Avoid by all means

Causticks, especially Sublimat, Arsenic, Colcothar; with which you anger a wound, and cast the Patient into very dangerous symptoms: For, though they may by their corrosiveness at first astringe the wound, yett they do afterwards so fret and eat it, that you would think, hell-fire were in it. Beware also of a hot Iron, which many have a refuge to as to a Master-piece and the last remedy.

Among the chief Astringents, is *Frog-spawn*; which therefore you are, when 'tis in season, to make good provision of, for the whole year. Take therefore in the Spring a lump of raggs, and dip it into Smiths-water, in which first some crude Allum hath been dissolved. Let this lump be dried again, and then draw it thorough the Spawn of Frogs, so as that the Spawn may every where hang on it, and expose it to the Air to dry; and afterwards draw the same again thorough Frog-spawn: Which repeat as often as you can, during the season of Frog-spawn; for the oftner you

you dip the raggs into it, the more vertue they will receive. This Spawn stauncheth bleeding, with a good bandage. I have often used with good success the distilled water of Frog-spawn in the bleeding of the Nose, first mixt with crude Allum, and then drawn up into the Nostrils. Take a green Frog, burn him in a pipkin, not to ashes, but so as to be reducible to powder: This powder put into a small Taffaty-bagg, and hang it about the neck of a woman that floods excessively; and she will find great help from it.

Having often made mention of Allum, which is one of the chief remedies for stopping of blood, I will make publick the *Magistery of Allum*, which I have hitherto kept secret. Take then of the best and clearest Allum as much as you please; pulverise it, and put the powder into an Oxe- or Swines-bladder, tying it very close: Then throw it into a kettle of hot water, and the Allum will be dissolved; this Solution bring over
the

the helm out of a low retort, untill the Allum get a *caput mortuum*; then cease to urge the fire any more, lest you force corrosive spirits from it, which are noxious to our present purpose. This *caput mortuum* put again into a bladder, and dissolve it as before; and do this so long, untill the whole body of your Allum be brought over the helm. But you must filter the first solution, for fear of any dust or other heterogeneous matter mixt with it.

This is the Magistery of Allum, able to draw the veins together without corrosion. Apply this to wounds, or any other bleeding part. You may mix with it Tragacanth, Gummi Arabic, *Sanguis Draconis*, and well-beaten Whites of Eggs.

Take good notice, whether the wounded Patient have heated himself in storming a place, or by any other military execution, or whether he be yet distemper'd by passion; for, as long as this lasts, the blood is in a rage, and can hardly be stopped.

In

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In this case stop the wound with Peacocks dung; and take Vineger and Whites of Eggs well beaten together, a little Allum, and refined Salt-peter; put to it as much Frogspawn, Shepherds-purse, broad Plantain, or other convenient water, as is necessary; so that there may be three parts of water and one part of vineger; dip pledgets into it, and clap them cold to the wound, and the bleeding will cease.

Crocus Martis also is an excellent stauncher of blood, to be used both inwardly and outwardly. For inwardly it cureth the Bloody Flux and other Fluxes; and outwardly applied to wounds and strewed into them, it closeth the veins. But it must not be prepared with *Aqua-fortis*, or distilled Vineger, or any corrosive thing, but only by the heat of a reverberating furnace; and afterwards distill often from it some proper water, as of *Roses*, *Speed-well*, *Self-heal* or broad *Plantain*; after which preparation it is divers times to pass again through

through a reverberating furnace, until it grow as light as a down-feather :: And then 'tis fit for our purpose ; for as long as it is strong and heavy , the body of it is not thoroughly opened.

Among other things, you may make use of the Red earth of Vitriol ; which is to be thus prepared : Take Vitriol , as much as you please, putt it, in a new unglased pipkin , into a Potters oven , to deprive it of its moisture , and to reduce it to a *Colcothar* : Then pulverise this calcined Vitriol , and in a large glased earthen dish pour hot water on it , letting it stand so for four or five hours ; then decant the water , and pour other hot water upon it , as before , repeating this three , four , or five times , untill all the salt be got out of the said *Colcothar* ; which whether it be done , may easily be found by the taste. Then dry this red dulcified Earth , and it will prove a very good blood-staunching medicine ; which may also in other cases be variously used ; as you'll find it hereafter of great use in my
plaister

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plaister for wounds made by thrusting.

The water you had poured on this *Colcothar*, you ought not to throw away as useless, but to put it by; and, for other occasions, you may boil it away, and it will leave a Salt behind, as white as snow, with which you may do wonders in foul Sores. I have used it with good success in such cases; in which it cleanseth and maketh a firm ground for new and good flesh to grow upon. For, though there be many things, that cleanse Sores, yet they leave the flesh loose and spongy; but this is both astringent, and withall maketh such a sound and firm bottom, that you may trust to it: Whence also it is to be used in fistulous Sores.

But to return to the stopping of Blood; take the blood of a Lamb or Sheep, let it stand in a clean earthen vessel, until the *serum* be sever'd from it; pour this off, and dry the blood well in a new glased pipkin, upon hot embers: Then pulverise it, and mix

mix with it a fourth part of clean pulverised *Tragacanth*, and strew this into the wound. If the issue of the blood be so impetuous, that it washes away the first application, then wipe the wound again, and strew into it of the same powder the second time. Putting amongst it *Allum*, *Crocus Martis*, or the red Earth of *Vitriol*, you will do well: Bind the wound with the *Emplastrum Santalinum*, (which is called *Incognitum* by our Chirurgions,) or with the *Ceratum ex pelle arietina*, due to *Arnoldus de Villa nova*.

The blood being stopt, and the wound cleansed, you must then apply good vulnerary Oyls or Wound-balsoms. Oyls are all, as I mention'd above, fatty; whence it is, that they do not easily consolidate wounds, unless you put to them some refined *Mastic*, *Sarco-colla*, *Sanguis Draconis*, *Sandarach*, or the like.

But to open unto you the good affection of my heart, I shall describe here my Wound-balsom, wherewith I have, by Gods assistance, done much good; *viz.*

Take

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Take as much as you please of Turpentin of *Cyprus*, which comes from *Venice*, and is taken inwardly; and the same quantity of the red Oyl of *St. Johns-wort*, dissolve them together: Then take Gumm Elemý, dissolve it apart, and pour it among the other; and so let all cool, and when 'tis half cold, pour amongst it a little Oyl of Bees-wax, and your Balsom is prepared. I cannot tell you the precise weight of each ingredient, because as often as I have prepared it, I have done it by the Eye, and as it seemed good unto me; only note, that there must be so much of the Gumm Elemý as to give it a due consistence; which you may try, by casting a drop or two of it into cold water; this Balsom being to be thinner than an Unguent, and yet thicker than Oyl.

This Balsom heals very speedily; especially when used in wounds freshly inflicted, on fine pledgets, and only with a yellow Tractif bound over it.

Be also provided with good Plaister for wounds made by Thrusting, such

as are the *Opodeldoch* of *Theophrastus*, or the good black Thrust-plaister, thus to be prepared: Take of Oyl of Roses seven ounces; of *Colophonium*, black Pitch, white Wax, Roman Vitriol, Cerusse, Frankincense, Myrrh, *ana* eight ounces; of Mastic, one ounce; of the Oyl of Eggs, two ounces; of Spike-oil, one ounce; of the Oyl of Juniper-berries, three ounces; of *Mumia*, two ounces; of white Vitriol and red Corals, *ana* two ounces; of Heron-suet, one ounce; of Magnet, two ounces; of well-cleaned Earth-worms pulverised and of Camphir, *ana* one ounce: Of all this make a powder *secundum artem*.

My *Opodeldoch*, that I make use of, is almost like this, but that I mix with it the red Earth of the Oyl of Vitriol, above spoken of in the matter of Blood-staunching; and add also to it Turpentin and Gumm *Elemi*, with some *Tutia*, *Aloes epatica*, well prepared *Lapis Calaminaris*, and *Crocus Martis*: And thus the Plaister becomes red and hard, like *Spanish Sealing*.

Sealing-wax. I take also *Gummi Ammoniac*, *Galbanum* and *Opoponax*, the Oyl of *St. Johns-wort* and *Myrrh*. This Plaister draws from the bottom, and reaches deep. A Souldier, having this about him, and, upon occasion, working it only to some flatness, there being no need of laying it on a cloth, may thus put it on the wound, taking it off mornings and evenings to wipe it clean; and then working it through again, lay it on as before: And so he may heal himself; which when done, let him clean the Plaister, and role it up in a bladder, for another occasion.

I have seen considerable operations of *Gumm Elemi* used alone, laid on leather, and put upon the thrust; but this wound is then to be kept from falling together.

To prevent incidental heat and inflammation of the wounds, make use of the Oyl of *Roses*, *Bol Armeniac*, *Whites of Eggs* and *Camphir*. But to avoid trouble, you may find ready, in the Apothecary-shops, the

Unguentum album, Unguentum de Minlo, Camphoratum de Liguiritia, de Lithargyro, Santalinum, and the like; to be put about the wound when dressed.

You may with great benefit, and you ought also, especially in the wounds of the Head, provided there be no danger of bleeding, lay over the bandage some fine raggs moisten'd in wine, and well dried again. This allays the pain, and withall prevents swelling.

And in case the wound be swelled, you may also to good purpose make use of Fomentations, made of the herb and flowers of *Mullein, Betony, Egrimony, Cowslips, Camomil, Melilot, Ground-ivy, red Roses, Bugle*, and the like: But beware of all hot things, whatever they be. Boil the aforelaid herbs or the like in half wine and water; but if the wound be not inflamed, take two parts of wine and one of water. With such fomentations I have done much good; among others upon a Fencing-Master of Nurenberg, called *Cameysen*, who
in

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in the publick Fencing-school received thrusts in both his Eyes, insomuch that by reason of the great swelling that ensued thereupon he lost all his sight; but by the use of such fomentations, God blessing the means, I recover'd his sight.

A *Bone* being broken, set it carefully, and bind it up strongly, having laid upon it *Oxycroceum* or *Emplastrum de pelle Arietina*. You may also comfort such wounds with the like fomentations, as before described.

On the bank of the *Rhine* is found a Stone in the gravel, call'd *Lapis fabulosus*, which is easily reducible to powder: Of this, if you can get it, give to the Patient, whose bone is broken, a drachm to be taken in broath, mornings; of which he will find a very good effect.

In the case of a Limb wrenched, clap to it *Bran* boiled in wine, sometimes, according to occasion, mixing with it a little Salt, and *Marsh-mallows* or red *Hounds-tongue-salve*. If it have happened long ago, then

make a pulse of Wheaten-flower Milk, and the Oyl of *Camomil* or *Mullein*, mixing a little Saffron with it, and clap it on hot. If there be any collection or coagulation of blood the Unguent of Hounds-tongue will do well, together with a linnen compress moistened in warm wine.

You must also be provided with good Wound-drinks; but they must be prepared diversly, according to the several places wounded. Thus in the wounds of the Head, *Betony* challenges the pre-eminence and the greatest quantity of all the Vulnerary Herbs; in the wounds of the Sides, *Carduus benedictus* claims that right; in the wounds of the Breast, *Veronica* (or Speedwell) ought to have it; in those about the Kidneys, the Herb Strawberry must be preferred; in those near the Liver, Agrimony will have the precedency, and so forth. Mean time, the Vulnerary Herbs, to be used in such occasions, are these; *Sanicle*, *Winter-green*, *Ladies-mantle*, *Speedwell*, *Orpine*, *Mugwort*, *Ground-ivy*, *Strawberry*.

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berry-leaves, Agrimony, St. Johns-wort, Cinquefoil, Bugle, Tormentil, Snake-weed, Avena, Woodrooff, &c.

You may make an excellent Wound-drink of these four Ingredients, *viz.* *Winter-green, Orpine, Mugwort and Snakeweed*, boiled in half wine and water; but in case there be an inflammation, wine is to be forborn, or very little of it to be employed.

If any Bone be broken into splinters; do not pull them out with any violence, but loosen them with a good Ointment of Eggs, keeping the wound open the longer. Nature herself will not suffer any splinter to remain behind.

Now you must be ready with some good thing for blood coagulated, in case any person should have been flung down, squeezed, beaten, or fallen from a high place. The right powder for this purpose is thus made: Take of *Terra Sigillata* or *Bol Armeniac*, *Sanguis Draconis* and *Mumia*, ana half an ounce, of *Sperma Ceti* and *Rhubarb* ana half a drachm, reduce it

to a powder; of which give the Patient the weight of about a ducat in wine, or chervil-water. Or take a good quantity of *Chervil*, boil it in meath or flesh-broath, and let the Patient drink a good draught of it warm, three times a day. Or let him drink a thimble full of *Sperma Ceti* in beer, adding a little butter to it. Or take off *Mumia* half an ounce, of *Sperma Ceti* two drachms, of *Oculi Cancrorum* (of which the blew ones, which sometimes fall from Crasfishes whilst alive, are the best,) three drachms, adding to it a little Licorish and Cinnamon, and some Tormentil-roots: Of this pulverised give every day to the Patient, mornings and evenings, the weight of about half a ducat, and by this means you will expel purulent matter and blood, and bony splinters, and sometimes even bullets lurking in the flesh; not omitting other good Wound-drinks, and vulnerary Balsoms, Plaisters, Ointments and Fomentations. Again, take of the red *Hounds-tongue* Ointment, of the bigness
of

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of a great Walnut, dissolve it in warm broth; it expels all coagulated blood, especially if you mix some *Sperma Ceti* with it.

If you have any thorns, thistles, bullets, small shot, or the like, to draw out, where perhaps you cannot reach them with Instruments, then burn live Crabs in a new pipkin, until they be reducible to powder, but burn them not to ashes. This powder mix with Hares-suet, and lay it on, and you will find a good effect. Also take the roots of the big *Reed* that grows in marishes, dry them to be pulverised, and mix Virgin-honey with it, and lay it upon the part; and of the same powder give the Patient to drink, twice a day, the weight of half a ducat in wine, or in broth, or in a vulnerary potion, if you have any at hand. The first of this I learned of the Excellent Doctor *Schleer* of *Constance*.

The excrement of a *Gander*, being applied, is also powerful in drawing out Iron. Again, Quince-wine min-

gled with vineger, and putting some saffron and gun-powder amongst it,, if you give it to one that hath been shot, it will do him good. Otherwise, they make a plaister of the roots of *Cumfrey*, *Aron*, *Polypody*, *Juniper*, and dried *Radishes*, all reduced to powder, and mix it with Hares-suet and grey *Diachylum*, making a thick Ointment of it, and spreading it over a piece of Hare-skin, and so laying it on. This is greatly praised, especially when seconded with good Wound-drinks, of which *Masterwort* is one of the Ingredients: But if you have not this at hand, take a *Beet* and boil it in wine, and lay it warm on the wound. Likewise, young Swallows, not yet fledged, burnt to powder, and this powder made by *acetum* of Roses into a pulse, and laid on, does the same.

You ought also to be provided for the *Synovia*: And if you proceed aright with my Wound-balsom above described, and keep the wound warm, you may therewith do much good.

Mix

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Mix with it, *ex abundanti*, the red Earth of Vitriol, above discours'd of. This *Synovia* is a dangerous thing, and often causeth almost intollerable pain, if it be not well handled; the Herb of Straw-berries and its Juyce have great vertue in this case. Some make use of the White of Eggs, Bol Armeniac, and the like. The Magistery of Allum also belongs hither; for, Allum mixed with vineger, and clapp'd on very warm, allays it also. Elder-blossoms like-wise, used every way, are effectual in the same case. Employ also diligently such Defensive-plaisters, as are not fatty, because fat lays no hold on water.

To proceed to Burnings, I know almost no better Salve for burning than this; Take a *Tench*, or any common Pond-fish; fry one or more of them with good butter, pour the fatness upon cold water in a broad earthen pan, and you have an excellent Ointment against Burnings. When, some years since, a Powder-mill was blown up, and the Attendants upon the

the work so miserably burnt, that they looked as if they had been roasted, they were healed with this Ointment, only a little finely powder'd *Sage* being mixt with it.

Cream and Linseed-oyl mingled together, and raggs, moisten'd therein, put upon the burnt part, healeth, though the burning were made with *Aquafortis*; for, to my knowledge, a certain Chymist that had thus burnt all his arm, was thereby restored. Or, take Oyl of Elder, or stale Oyl that hath been long in a burning lamp; beat half as much, as you take of that, of the Whites of Eggs amongst it, and anoint the burnt part therewith. If you can get no Oyl of Elder, take any other cooling Oyl, as of *Nymphaea* (Water-lillies) *Poppy-seeds*, *Violets* or *Roses*, or the Oyl of *Poplar-buds*, or of *Marsh-marigold* Flowers.

If you can have Quince-wine, it marvailously extinguishes the burning of any shot, dipping a linnen pledget in it and drawing it through the wound,

wound, or left in it, repeating this every twelfth hour. The Juyce or Wine of Quinces must be used as it comes from the fruit, without any mixture of Sugar. This I learn'd from a Nobleman, a great Souldier, of long experience in the Wars of *France*, the *Low Countries*, and *Hungary*.

The *Unguentum Jovis*, made of *Henbane*, *Vervain* and *Butter*, is also very useful for this purpose. Likewise the Ointment of *Calx viva*, which is first six or seven times to be flaked and dulcified with pure water, pouring every twelve or sixteen hours fresh water upon it, and decanting the former, so as to leave always the *Calx* at the bottom; which is then to be mixed with Oyl of *Roses*, or some other cooling Oyl, for an Ointment.

If you be well acquainted with *Elder*, and know how to use it, you may obtain out of it one of the best Cures of Burnings, especially out of its middle rinds. Again, Yolks of Eggs and Linseed-oyl, equal quantities, mixt together, and spread over
the

the burning, is also very good. Egg-oyle likewise used by it self, and Ver-nice employed by Joyners, do well also; but the latter of these two, if it be mixed with Oyle of *Spicanard*, or *Petroleum*, is to be mingled amongst *Linseed-oyle*.

Spread fresh Butter upon Cabbage-leaves, having first fryed the Butter with some blossoms or the middle rind of *Elder*; and so lay them to the burning; *Elder* being a great resister of Inflammations, and therefore very good to allay *St. Antonies fire*; if you pull its mild green rinds from the stem, and lay them on, without moistening them. Else they use against the said Fire, Flower mixed with the powder of Licorice, to be clapt on with a ragg done over with red *Saunders*. My way is, to take the shavings of some fresh and juyey Licorice, and to fry them in new Butter; then to strain the Butter from it, and to fry the like fresh Licorice therein, and to strain the Butter from that again; repeating this five or six times. A-mong

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mong this strained Butter I stir some pure and fine *Cerusse*, Whites of Eggs and a little Camphire. And with this Ointment I have, by the assistance of God, done much good in the said inflammation of *St. Antonies fire*; and the common people do to this very day call this Ointment by no other name than that of Doctor *Minderer's Licorice-ointment*. But to return to the quenching of Burnings.

If you can have Milk-cream, mingle it with Cow-dung freshly made, and so clap it on; though fresh Cow-dung alone allays burning. *Crafishes* pounded alive, and fryed in fresh Butter or in common Suet, the Butter strained herefrom, is also a good Ointment against burnings. Unsalted Lard, melted by a Wax-candle, or an hot Iron, and dropp'd upon fresh cold water, and then gather'd up from the water, and carefully rubbed from the same, hath the like operation. Take one of the cooling Oyls above-named, and fresh Butter, boil the middle rind of Elder in it, and with a sufficient quantity

quantity of Wax make of it a Salve, and this also will cure burning.

You ought also to be provided with a fit *apparatus*, Lints, Swathing-clouts, &c. and to take Deer-suet, Oyl of Roses or Elder, and white Wax, and melt them over the fire, yet so as that you melt the Wax by it self, and add of it no more to the rest than to make it a thin plaister. Into this compound you must dip some fine lint, and you'll find it very useful for any angry part; as also when one limb presses or otherwise incommodes another, as happens in hydropical and other swollen people, whose belly so sinks down, that the thighs suffer by it; in which case such lints are to be put between the parts, to keep them from immediately touching and pressing one another.

A *Gangrene* is cured with Sal-armoniac boiled in Urine, especially in that of the Patient, and clapping such Urine upon the part affected: The quantity of the Sal-armoniac may be six drachms.

For

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For *frozen Feet*, take Gander-suet and Deer-suet; dissolve them together, and pour them into a white excavated Turnip, and expose this for a while to the Air, Rain, Wind, Hoar-frost, Snow, according as the season shall be. Then mince the Turnip, and fry it in the same Suet which you had poured into it; that done, squeeze it out, and let the fat fall upon cold water; and being there brought to consistence, take it off, and bring it over the helm from burned Wine, and decant this carefully from it again, and 'tis duely prepared. You may also recover frozen Feet with white rotten Turnips, beaten with Butter or Tallow, and so clapt on.

CHAP.

CHAP. X.

*Of several promiscuous Medical Practises,
for the Service of the honest Souldier.*

THIS Chapter I have annexed to the former as an *Appendix*, for the ease and good of Souldiers; wherein some things will occur, not inferiour to those, that have preceded. But herein I have kept no order, but set them down promiscuously, yet faithfully, to supply what may have been omitted before.

If you be troubled with the *Tooth-ach*, coming from the cold in winter, take the root of *Pyrethrum* (Pellitory of *Spain*) and boil it in Vineger, and hold this Vineger warm in your mouth, and it will draw out the phlegm that causes the pain. Or, take the root of Elder, boil it in half Wine and half Water, and hold it warm upon the Teeth. But what you take of this *Decoction* must be often

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often spit out, and other fresh taken into your mouth; of which I have found wonderful Effects.

The root of *Heath* boiled together with the same herb in wine, and laid on, is esteem'd to be powerful in drawing out thorns and splinters.

You may make a good Ointment against the *Itch* and *Scabbs*, of *Savin*, stale Fat, Brimstone and Juniper-berries Oyl.

If your Limbs after a long sickness be weak, boil *Valerian*-roots in Camomil-oyl, and anoint such Limbs therewith. Also the Oyl of *Lillies in the valley*, and that of *yellow Violets*, is good for the same purpose.

For worms in the Fingers, bruise *Persicaria* (Arsmart,) and lay it on; or take of a Piggs Bladder of Gall, and put it on the affected Finger like a Thimble.

If you have any coagulated or congealed blood in your Breast, make a Decoction of *Scabious*, *Chervil*, and *Germander*, in two parts of wine, and one part of water; strain it, and

L drink

drink of it mornings and evenings.

Against the putrefaction of the Mouth, make a Decoction of *Privet* in water, adding afterwards a little Allum to it, and use it for a gargarism. Also a Decoction of the middle rind of *Hawthorn*, with a little Allum, is of great effect in the same case.

Cabbage and Colewort-leaves burnt to ashes, and a Lixivium made of it, and clapp'd on, cureth a Gangrene, and the wild Fire, especially if you mingle a little Oyl of Elder therewith. If you can have no Elder-blossoms for this Oyl, take the green middle rind of Elder, and boil it in Oyl Olive, and then strain the Oyl; which done, take fresh rind of Elder, and proceed with it as before, repeating it three or four times to make the Oyl the stronger. You may add a little wine to it whilst 'tis boiling, but that must all boil away, and so long till the Oyl cracks no more in the fire.

Southern-wood stamped with grease and laid on, draweth out splinters.

If

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If you have the Itch or are scabby, and can light upon some water standing in the hollownes of a *Beech-tree*, wash your self with it. Or make a Decoction of the brown rind of *Alder*, (which is under the gray,) in Butter, and anoint your self with it; mixing, if you will, a little Brimstone therewith.

If you be troubled with the *Ring-worm*, or any running Scab, infuse Litharge in Vineger, and let it stand a night infused, or make a Decoction of the same in Vineger. But your pan or vessel must be of brass. This Vineger mingle with Oyl of Elder, or of Roses, or the like, and it will become a fine gray Salve, curing such running Scabs as aforesaid, and cooling also Inflammations.

If your Body be bound, take *Sage* pulverised, and mix it with grease, and anoint your Navil with the quantity of a hael-nut of it. This I have with very good success advised to women in childbed, that were thus bound and obstructed. If you will

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have it stronger, mix with it the Gall of a Fish or of any Animal whatsoever; but then you must not give it to a woman in childbed.

Gromel (by the *Latins* call'd *Milium Solis*) pulverised, and the weight off half a ducat of it taken in wine or broth, provoketh urine; yet must the belly be open'd first. The same doth *Linaria* or *Toad-flax*, boiled in wine or broth. Likewise distilled water of Radishes, repeating the distillation several times from other fresh Radishes. Which will have the better effect, if the Patient bath his lower parts in a bath made of *Marsh-mallows*, *Melilot*, and the like.

Gromel, above-mention'd, taken in warm broth, expels the birth: And so do the blossoms or buds of Walnut-trees; Crabs-eyes also, pulverised and taken in warm broth; likewise *Issop* boiled in wine, and drank warm. This I have inserted for the sake of poor Souldiers-wives, who amongst us often follow the Camp. If they have any great After-pains, let them bath their
their

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their lower parts in a Bath made of *Dill*, and *Camomil*-flowers. And the yolks of hard Eggs, beaten together with some convenient Oyl (*Nut-oil* is the best,) and a Plaister made of it, and laid to the belly, is also very good. If they have too great a profusion of blood, let them take a drachm of burnt Harts-horn, and burnt Ivory, in a convenient Vehicle.

In case of a mortal wound, take of pure Turpentine four ounces, wash it with fresh limpid water, and then dissolve it over a mild fire; which done, mix with it two ounces or two ounces and an half of white Wax, dissolved apart: To this add about three ounces of Womans-milk, which is sucked by a Boy. The Turpentine and Wax being somewhat cooled together, must be well stirr'd, and then powred on cold Vineger; whence, when 'tis brought to a consistence, it is to be taken off, and made into a Plaister, and so laid on.

Horse-tail (in *Latin*, *Equisetum*) heals

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the wounds in the urinary parts, the powder of it being taken in broath or *Speedwel-water*, or the Decoction thereof being drank.

Gummi Ammoniac is a good discutient of hard Tumors and Knobs: *Tacamahaca* appeaseth pain proceeding from cold, being laid on the part affected.

To make the pellets used to be put in wounds that are to be kept open, (which here in *Germany* we call *Quellmaissel*,) take a Sponge of the finest sort, put it in Whites of Eggs well beaten and mixed with Rose-water, to make the said Sponge imbibe this moisture. Which done, bind it close together with thred, and let it well dry in the Air, and so convey of it into the wound that is to be kept open: where it will swell again, and so distend the wound.

If you be troubled with the *Gonorrhæa*, take *House-leek* growing on old walls (call'd by the *Latins*, *Semper vivum minus*,) put it into your shoes, and go bare-foot upon it; anoint your loyns

loyns and privy parts with *Henbane-oyle*; and take mornings the quantity of two big hasel-nuts of well washed Turpentine, for some days together, avoiding all aromatic, hard, and salt meat.

An old Experimenter hath noted, That whosoever shall wash his head twice a week with a *Lixivium* made of Juniper-ashes, his sight shall never fail him, but remain good to his end; nor shall that person be troubled with any vermin upon his head, nor with any head-ach, nor suffer any change of his hair. For my part, I never tryed it; but it being a very plain and safe thing, I thought good here to insert it.

Against the biting of a Mad-dog; lay *Assa fatida* with Garlick upon the bite; it will draw out the venom.

To free your self from the Gravel; make a Decoction of *Ash-wood* in wine, and drink of it warm once or twice a day upon an empty stomach; using withall good baths. *Vervin* also, the leaves and roots, beaten together,

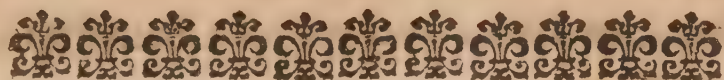
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and drank, is very good in this case.

If you have a strong breath, proceeding from a foul stomach, infuse *Wormwood* and *Carduus benedictus*, together with some *Citron-peels*, in wine, and let them boil a little therein, and then drink a good draught of it mornings. Chew also and swallow sometimes a little *Myrrh*, and take now and then three or four *Aloes-pills*.

I could add many other things, if my leisure would permit: These which I have set down, you will take in good part; and though I have not tryed them all my self, yet you may rest assured, that such as have not been experimented by my self, have been tryed by my honoured Collegues and other honest persons, and approv'd.

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of Dr LOWER'S LANCET, for the
more safe *bleeding*.

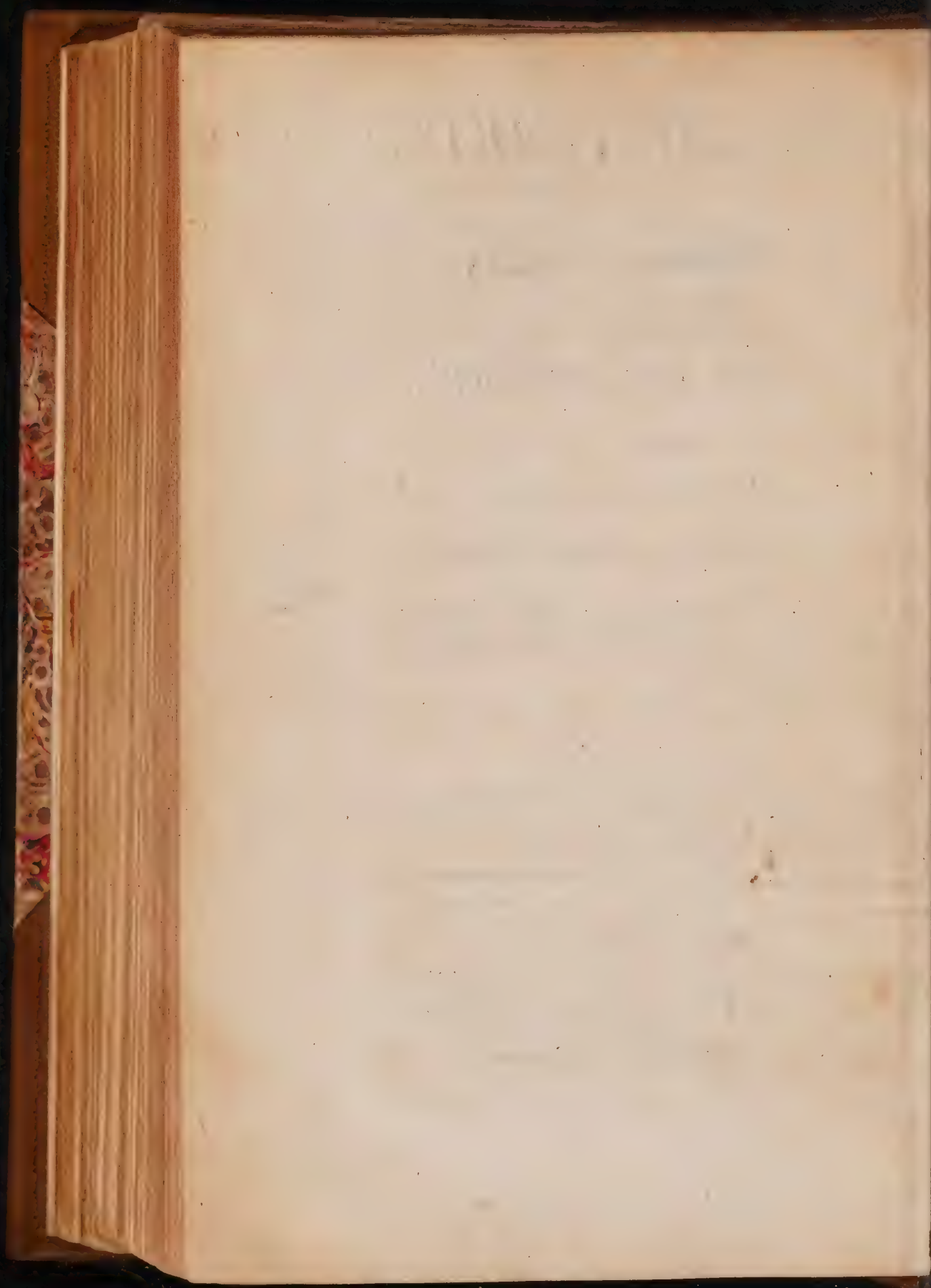
Written in *Latin*,

By GULIELMUS FABRITIUS HILDANUS.

Englished for publick Benefit.

LONDON,

Printed by W. Godbid, and are to be sold by
Moses Pitt, at the *Angel* in *St. Paul's*
Church-yard. M. DC. LXX. IV.



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A Description of a
LANCET,

FOR
The more secure Letting of
BLOOD,
By D^r LOWE R.

FOrasmuch as it hath been
thought convenient by several
good Chirurgeons, to contrive
a safe way of Blood-letting,
for the benefit of young Beginners
in that Profession; and whereas
Dr. LOVVER of late, in his Treatise
of the Heart, hath discovered
a plain and secure way of Bleeding,
and given a figure of the
A 2 Lancer,

Lancet, which he commends for that purpose, I have been advised, for the publick Good, to translate what he hath written, and likewise give the figure of the Lancet, and description of the Use of it, as it is printed in the 166 page of the last and truest Edition of his Book, Printed at Amsterdam 1671, in the Author's own words.

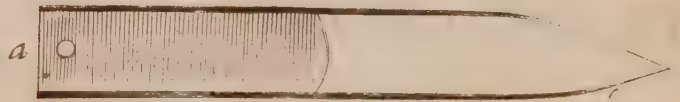
HOW great Ebullition sometimes happens in the Blood, in what vessels, and with what swift motion it is cast about every where through the Body, and if an Artery be opened how quickly, and with what force it breaks out, it hath been hitherto treated of in the foregoing Discourse; by which it appears, how necessary sometimes *Blood-letting* is, to diminish its Quantity, or to stop its Career, and how dangerous the Administration of

of it is, if it be performed by a rude and unskilful hand.

For it often happening, either by want of skill, or common practice of *Bleeding*, (which makes the Mind fearful, and consequently the Hand trembling and uncertain) that an *Artery* is opened, or a *Nerve* or *Tendon* cut or prick'd, whence follows Swellings, Pains, Inflammations, Gangrenes or Convulsions, which put the member in danger of being cut off, or render'd useless, I thought it might not be beyond the scope of my Treatise, if, by way of *Appendix*, I should shew by what means and Instrument any Vein might be safely and securely opened, (if it swell upon a Ligature) though it have an Artery, Nerve or Tendon immediately under it.

Forasmuch therefore as never any harm happens in *Blood-letting*, unless a Vein be prick'd through, or slipping aside, the *Lancet* be put too deep into the part, the Fabrick of this *Lancet* is such, and ought to be so put into the Vein, as both may be easily prevented.

For the *Lancet* is so contrived, that it is not cutting on each side, unless it be near the point, but is purposely blunt, and made round on the lower side, which is to be applied next to the skin, that it may more easily slide over it, as it appears by the following Table, in which



a the *Lancet*.

b the place where the upper edge of the *Lancet* ends in a plain.

c where the under edge of the *Lancet* ends, the rest of the under part being polish'd round, and thick, (but not made thicker than the upper plain part) that it may not grate or tear the skin (upon which it must be applied) by its compression.

Which

Which figure of the *Lancet* differs nothing from a common ordinary *Lancet*, but that the under edge of it is blunted almost to the point.

The way of using it is only this, that the Member being tied, and the Vein swelling, the *Lancet* must be applied as neer to it as possible, but so that the *Lancet* may be depress'd as much as may be; then the Point of it being directed upwards, it must be gently, and by an oblique transverse Incision be put into the Vein: which if so directed, neither can the Vein avoid the point of the *Lancet*, or the parts underneath be any way offended.

Which way of *Blood-letting*, as it is most easie, so it will never prove unhappy to any one, though but meanly skilful.

And though I do not write this to *Physicians* and *Chirurgeons*, who are expert, and frequently exercised in bleeding; yet having seen many peoples health and life endangered, either by ill *Blood-letting*, or because a good *Chirurgeon* could not timely be called

(6)

in by *Physicians*, who most commonly
forbear the Practice of it, therefore
have devised this figure of a *Lancet*
that they may more securely and com-
fidently use it.

CIST 4



CISTA MILITARIS,

OR

A Military Chest,

*Furnished either for Sea or Land,
With convenient Medicines
and Instruments.*

WHilst I was in the *Low Countries* in the year 1612, in the City of *Mosk*, I was entertained with great kindness by that Noble and Valiant Gentleman, *Alexander de Schmeichel*, Governour of the Place and Works, who amongst the other things worthy seeing, shewed me the *Military Chest* of the most Illustrious Heroe, *Maurice*, Prince of Orange, &c. wherein not onely *Medicines* and *Instruments*, but also *Linnen*, *Rowlers*, and other Necessaries were prepared, and disposed all in order in a Room, but
not

not as then put into the Chests, which were fitly contrived for that purpose,, because that the *Garrison-Soldiers* might be supplied with what they needed for their healths; and also that the Medicines that were wanting or decayed, might be forthwith renewed: an evident sign, and great demonstration of the Piety, Prudence, and Care of this *Prince* towards his Soldiers. This *Chest*, as often as necessity required, march'd with the Camp, and in the greatest and most dangerous occasions the Soldiers were for the present succoured, and assisted from it. Then afterwards they were carried to the next Cities, where they were taken care of by Physicians and Chirurgeons, appointed and paid by the *States*: and if by chance any Soldier lost a Limb, or was lame, he was relieved, and had an Annual Pension from the *States*. This pious and Christian Constitution made the Soldiers despise all dangers, and encouraged them to be both valiant and daring.

Therefore

Therefore that *Generals* may understand what things are most necessary to furnish a *Chest* with, I thought good to set down both the principal Medicaments, and Instruments, that a Chirurgion, following the Camp or Sea, ought to be provided with; and if there should be occasion for any others, he may furnish himself at the next Shop he comes at.

The *Chest* ought to be so divided into Partitions and *Classes*, that all confusion and intermixing of Medicines may be avoided, and the Virtue and Propriety of each preserved. To this purpose I have divided it into twenty *classes*.

The first contains *purging Simples*, which must be put up in Leather-bags, except *Manna* and *Cassia* extracted, which may more conveniently be kept in Galli-pots. Those Bags again are to be put into other larger, and writ upon in great Characters, *Purging Simples*.

In the second *classis* are contained *Purging Electuaries*, which are to be kept

kept in Gally-pots, writ upon, *Purging Compounds*: and so of the rest.

Syrups, and *distill'd waters*, are to be put into double Glasses, close cork'd, and tied down with Bladders. They must be so plac'd, that they may not move, and so break each other, and their cells lined with Baiz.

Pills are to be wrapt up in white leather, rubb'd first with oyl of sweet Almonds.

Cordial Powders and *Electuaries*, being put into leather bags, are to be so plac'd in a separate *classis*, that they may not mix with the Purgers.

Roots, *Herbs*, *Flowers*, and *Seeds* are likewise to be kept in bags of Leather or Linnen, and to be so distributed, that in the first *Classis* the *Roots*, second *Herbs*, &c.

Oyls, and *common Balsams*, in Glass-bottles, with screwed Pewter-heads; but the pretious *Chymical Oyls*, as of *Cinnamon*, *Cloves*, *Maces*, *Nutmegs*, &c. ought to be preserv'd in double Glasses well stop't with Cork, and waxt. The Balsams likewise of these are to be kept in Glasses, or Silver.

Un-

Or, A Military Chest. 11

Unguents, and *Fats* are best kept in Gally-pots, or of Pewter, well tied down with Paper and Leather. And *Turpentine* so likewise.

Plaisters, *Gums*, *Wax*, the Sewet of *Bears*, *Cows*, *Goats*, and the like, which are of a solid consistence, are to be put in Bladders wrapt afterwards in Paper.

Metals, and *subterraneous Medicaments*, as *Vitriol*, *Allum*, *Letharge*, *Bole*, &c. as also *Meals*, must be put into Leather-bags: but prepared *Tutia*, *Seif album*, *Ostiocolla*, and the like, which are to be used in *Colliriums*, or given inwardly, are to be wrapt up in Paper, and put into Leather-bags, and plac'd amongst the Cordials. Let all the Bags be tied close, and written upon in great letters, to prevent confusion.

Arsnick, *Orpiment*, *crude Mercury*, *sublimate*, *precipitate*, *caustick*, *Minium*, *Troches*, *Spirit of Vitriol*, *Aqua fortis*, and the like corrosive Medicines, are not to be plac'd in the Chest, lest the Glass, or what other things they are

con-

contained in, break, and so spoil and prejudice the other Medicines, and withall endanger the lives of the sick; therefore to prevent this, it is more convenient to keep them in some Box or Chest apart by themselves.

The Instruments are to be preserv'd in this manner. Those that are for *cutting*, and *edged*, as *Rasors*, *Scissors*, *Incision-Knives*, &c. are to be kept in Cases, the rest are wrapt in Paper, or rather in Flannel.

These being thus prepared, and in readiness, you must take a *Catalogue* off all, that you may presently, and without trouble, find them when you have occasion for them.

As your *Chest* is divided into *classes*, after the same manner it is necessary to write your *Catalogue*; and as often as any Simple and Compound Medicine is wanting, mark it on the Margin of the *Catalogue*, that you may supply its defect.

All which, kind Reader, I thought good to advise: the *Classes* following now in order.

Classis

CLASSIS. I.

Contains the Pur-
ging Simples.

Agarick.
Aloes.
Rhubarb.
Cassia.
Crocus Metallo-
rum.
Colocinthis.
Diagridium.
Senna.
Hermadaets.
Manna.
Mechoacans.
Myrobalans.
Juice of Damask
Roses.
Trochisci Alban-
dal.
Turbith.

CLASSIS II.

Purging Com-
pounds.

Benedicta Laxati-
va.
Confectio Hameck.
Diacarthamum.
Diacatholicon.
Diaphænicon.
Diaturbith cum rha-
barbaro.
Electuarium de succo
Rosarum.
Electuarium Leni-
tivum.
Pulvis Sennæ præp:
Brassavoli.
Syrup of Roses solu-
tive.
Pill: Aggregativa:
Aurea.
Cochia.
de Agarico.
Lucis majoris.
Ruffi.
Extract.

Extract: Rūdii.

Species for Suppositories.

CLASSIS III.

Electuaries, and
Powders strengthening the Heart,
and noble parts.

Aromaticum Rosa-
tum.

Bolus orientalis.

Camphire.

Confect: Alchermes.
de Hyacintho.

Prepared Coral.

Burnt Harts-horn
prepared.

Cremor Tartari.

Diaireos.

Diamargaritum fri-
gidum.

Diarrhodon Abbatis.

Diatragaganthum
frigidum.

Diatrion Santali-
num.

Flower of Brimstone.

Bezoar Stone.

Prepared Pearls.

Mithridate.

Meconium.

Opium.

Laudanum Opiatum.

Ostrocolla, prepared
to be given in-
wardly.

Philonium Roma-
num.

Pulvis ad Epithe-
mata cordis.

Shavings of Harts-
horn.

Sal prunella.

Tartarum vitriola-
tum.

Seal'd Earth.

Theriac: Londinens:

Andromachi.

Diateffaron.

CLAS.

CLASSIS IV.

Aromatics , or
Spices.

Calamus Aromati-
Cloves. (cus.
Cinnamon.
Saffron.
Gallinal.
Mace.
Nutmegs.
Pepper.
Sugar.
Ginger.

CLASS. V.

Distill'd Waters ,
and the like.

Of Sorrel.
Aniseed.
Burrage.
Bugloss.
Marigold.
Cinnamon distill'd
without Wine.

Baxlm.

Plantain.

Roses.

Aqua Vita.

Absynthii.

Mintha.

Theriacalis.

Juices of *Barberies.*

Citrons.

Pomegranats.

Vineger of *Roses.*

Common Vine-
ger.

CLASS. VI.

Syrups

of

Sorrel.

Unripe Currans.

Barberies.

Bugloss.

Citrons.

Quinces.

Pomegranats.

Limons.

Liquorice.

Poppies.

Roses.

B

16 CISTA MILITARIS,

Roses not laxative.	Orris.
Dried Roses.	White Lilies.
Violets.	Liquorice.
Mel Rosarum.	Parsley.
Oxymel simplex, scil-	Burnet.
liticum.	Plantain.
Diamoron.	Polypody.
	Squills.

CLASS. VII.

Roots

of
Marsh-mallows.
Angelica.
Birthwort long, and
round.
Bistort.
Briony.
Arens.
Onyons.
Succory.
Comfrey.
Sow-bread.
Elecampane.
Eringo.
Fennel.
Gentian.
Swallow-wort.

Tormentil.

CLASS. VIII.

Herbs.

Wormwood, com-
mon, and Ro-
man.
Agrimony.
Ladies Mantle.
Jack by the hedge.
Marsh-mallows,
Leaves, Flow-
ers, and Tops.
Betony.
Carduus benedictus.
Centaury.
Knotgrass.
Cuscuta.

Dittany

Dittany of Crete.
 Horsetail.
 Eye-bright.
 Fumitory.
 St. Johns-wort.
 Marjerome.
 Balme.
 Mint.
 Mercury.
 Nep.
 Origanum.
 Plantain.
 Self-heal.
 Winter-green.
 Ribwort.
 Rosemary.
 Rue.
 Sage.
 Sanicle.
 Scabious.
 Scordium.
 Golden Rod.

CLASS. IX.

Flowers
 of
 Dill.

Betony.
 Borrage.
 Bugloss.
 Marigold.
 Camomile.
 Pomegranats.
 Melilot.
 Primrose.
 Roses.
 Rosemary.
 Sage.
 Elder.
 Mullein.
 Violets.

CLASS. X.

Seeds
 of
 Dill.
 Anise.
 Caraways.
 Coriander prepar'd.
 Cummin.
 Quinces.
 Fænu-grick.
 French Barley.
 Linseed.

B 2

Parsley

Parsley.
Plantane.
Raddish.
Mustard.

CLASS. XI.

Fruits.

Almonds.
Bay-berries.
Acorn-cups.
Figs.
Preserved Cherries.
Quinces.
Galls.
Acorns.
Lemons.
Lupins.
Oranges.
Pomegranats.
Mirtle-berries.
Cypress-Nuts.
Rose-cups.
Prunes.
Tamarinds.
Raisons.

CLASS. XII.

Oyl
 of
Almonds, sweet,
 and bitter.
Dill.
Aniseeds.
Balsam of Tolu.
Vigo's Balsam.
 Oyl of
Carmayseeds.
Cloves.
Wax.
Camomile.
Cinnamon.
Quinces.
Fennelseed.
St. Johns-wort.
Juniper-berries.
White Lillies.
Earth-worms.
Mastick.
Mint.
Myrtles.
Nutmegs.
Olives.

Roses

Roses.
 Scorpions.
 Turpentine.
 Violets.
 Yolks of Eggs.
 Petroleum.
 Foxes.
 Elder.
 Linseed.

CLASS. XIII.

Unguent.

Ægyptiacum.
Album Rhafis.
Apostolorum.
Aureum.
De Mirio Campho-
raturum.
Defensivum Chal-
metæi.
Dialthea.
Diapompholiges.
Nicotiana.
Populeon.
Rosatam.
Ad Ambusta Hilda-
ni.

Basilicon.
Linimentum Arcei.
Martiatum.

CLASS. XIV.

Fats
 of
 Geese.
 Beef.
 Capons.
 Deer.
 Goats.
 Men.
 Hens.
 Hogs.
 Bears.

CLASS. XV.

Plaisters.

Apostolicum.
Basilicum.
De Betonica.
Diapalma.
Diachilon simplex &
compositum.
De Melliloto.

*De Mussilaginis.**Oxycroceum.**De Ranis.**Paracelsus.*

CLASS. XVI.

Gums, &c.

*Ammoniacum.**Benjamin.**Wax, white, and
yellow.**Colophony.**Elemni.**Euphorbium.**Mastick.**Myrrh.**Olibanum.**Pitch.**Stirax Calamita.**Turpentine.**Tragaganth.*

CLASS. XVII.

Minerals, and their
like.*Alome, crude and
burnt.**Antimony crude.**Arsnick.**Lime wash'd.**Ceruse.**Crocus Martis.**Gypsum.**Lapis Calaminaris.**Cauticus.**Medicamentosus**Crollii.**Sabulosus.**Lythargirium aure-
um, & argente-
um.**Mercurius crudus.**Sublimatus.**Præcipitatus.**Nil præparatum.**Niter crude, pre-
pared.**Burnt Lead.**Realgar*

<i>Realgar.</i>	<i>Barley.</i>
<i>Seif album.</i>	<i>Lentiles.</i>
<i>Sulphur.</i>	<i>Darnel.</i>
<i>Tutia prepared.</i>	<i>Lupines.</i>
<i>Vitriol crude, and</i>	<i>wheat.</i>
<i>burnt.</i>	<i>Mill-dust.</i>
	<i>Pulvis ad sistendum</i>
	<i>sanguinem.</i>

CLASS. XVIII.

Meals

of

*Bay-berries.**Beans.*

CLASSIS XIX.

Instruments.

Besides the above recited Medicines, it is also most requisite, that a Chirurgion should be furnished with necessary Instruments, without which he cannot perform his duty as he ought. They may be divided into two sorts, some to be fitted for a Box, which he ought continually to carry about him in his Pocket; these ought to be made small and little, that they may neither load him, nor fright the Patient: the

B 4

others

others are to be kept in the Chest, whilst occasion calls for their assistance. I never visited my Patients without a Box of Instruments in my Pocket, in the which were contained the following:

A Razor.

A pair of Scissors.

Two Incision Knives,

Four Lancets to bleed withall.

A crooked Knife to open Apostems.

A Flegme, to divide the Gums in the Tooth-ach.

An Extractor, to take out forreign things out of Wounds.

A pair of Forceps for the same use.

Needles, to stich up great Wounds, which are to be of different Sizes, some great, others small, &c.

*A stitching Quill, which is used in stitching Wounds: it ought to be of that length, as to contain the Needles within its hollownes. Wounds of the fleshy parts only are to be sticht, nervous parts in no wise. In wounds of the face I never use Needle, but that which is called the *dry stitch*.*

Spa.

Spatula's, great and little.

Probes.

Speculum oris, one end of which, in affects of the Jaws, and Throat, is to depress the tongue, the other to scrape it.

Uvula-spoon.

A *Burrus* quill, to sprinkle Powders upon Wounds or Ulcers.

A *Hook*, single at one end, and two at the other.

A *Hone*, to set the Incision-knives, Lancets, &c.

I had all these Instruments, and many more, made me by a skilful Artist in Silver, which I used only within the Town, Patients being less afraid of them than of Iron: but at Sea and at Camps it is not so safe for a Chirurgion to have them of Silver, therefore they may be very conveniently made of Iron or Steel, except the Probes, which ought to be made of Lead, Copper, or Latin.

These Instruments a Chirurgion ought always to have about him, as also a Salvatory with six divisions,
which

which ought to be furnish'd 1. with *unguentum Basilicon*, 2. with *ung. Aureum*, 3. *Apostolorum*, 4. *Nutritum*, 5. *Album Rhasis*, the 6. with *Rubrum Exsiccativum*, or *de Minio*: it ought to be made of Horn, or some solid wood, as Ebony, Guaiacum, or Box, for Unguents are better preserved in wood, than in Silver, Copper, &c. It is also requisite that he hath about him in a Pewter Bottle some oyl of *Roses*, to anoint any wounded part, it easeth pain, &c. as also another pot with a digestive.

Thus much for the Instruments, which a Chirurgeon ought to wear about him; now follow the others, and first of those that are us'd about the Head.

1. *Trepans*, by which the Skull is perforated in great Contusions, to give passage to extravasated and concremented blood collected in the head.

2. *Levatories*, to raise the depressed skull.

3. *Scalpra's*, to scrape the carious skull.

4. A great *Speculum oris*, by which the

the Tongue, in great inflammations of the Jaws and Throat, is depress'd.

5. Another *speculum oris*, to force open the Mouth, which, as I have seen sometimes in *spasmus's*, to be so close shut, that a drop of Broth could not be poured in.

6. Several Instruments to draw Teeth.

7. And because sometimes in eating, a fish-bone or the like is fixt in the Throat, and so would suffocate the person, therefore it is necessary for a Chirurgeon to have in his Chest such an Instrument, as I have described in the 36 *Observation of the first Century*: but if he hath it not at hand, let him forthwith make fast a piece of *Spunge* to the end of a Catheter, and thrust it down the Throat.

8. Instruments to draw forth Bullets from Gunshot-wounds, of which there are diverse set down by Authors. I esteem that the most convenient, whose Description you may see in the 88. *Obs. of the first Century*.

9. A great Saw, for amputating great Members.

10. A *little Saw* for the dismem-
bring Fingers, and Toes; it not be-
coming a Rational Chirurgeon to se-
parate them with Chissels, as I have
more largely shewn in my *Treatise of*
a Gangrene, &c. chap. 17.

11. Because in amputating, the
greater part of Chirurgeons use a
Knife, it is convenient to have *one well*
set, and strongly fixt in a Handle.

12. A *crooked Knife*: its Descrip-
tion see in the *above named book of a*
Gangrene.

13. I, in the taking off of Mem-
bers, in stead of a Knife, use a Cautery,
made in fashion of a Knife, well edged,
and red hot: its description is in the
above named Treatise. He ought like-
wise to have ready other Cauteries,
some larger, others lesser; some sharp,
others round, which may be used to
stop the flux of Blood after Amputa-
tion, or other great and dangerous
Hemorages.

14. And because Soldiers, from
their debaucheries and impure copu-
lation, are oftentimes troubled with
the

the running of the Reins, Caruncles, and suppression of Urine, it is necessary a Chirurgurgeon should be provided with Catheters and Syringes.

15. For the reducing of Broken Bones, and Dislocations there are several Instruments, both by *Hippocrates*, *Oribasius*, and other Authors, set down; but I have always found in my practice the Instrument of *Ambrose Parey*, which is with a Pulley, the most convenient; especially if you joyn to it the Girdle and Remora, as in the 86. Observation of the fifth Century: it is not onely the most convenient, but most useful Instrument for all Fractures and Dislocations, except of the Fingers, Ribs, and Mandibles (which are set by the hand alone; it is also little, and therefore not troublesome to carry about one.

16. A Chirurgurgeon ought also to be provided with Splints of several bignesses, some little, others big, according to the qualities of the members broken, which ought to be made of thin pieces of Wood, or of Scabbards.

He

28. *CISTA MILITARIS,*

He must be provided likewise with *Mortars, Sives, Skillets* to boyl *Cataplasm*s in, and also to mix up *Oyntments*; and with *Glyster-pipes*, whose use in *Angina's*, wounds of the Head, Feavers, &c. are very useful.

The Description and Cuts of the Instruments are given by *Ambrose Parey, Joh: Andreas à Cruce*; but because this should be a compleat Treatise off *Chirurgery*, there is added to it several *Copper-plates* of the most usefull Instruments for almost all operations, but especially of all those that relate any way to the operations mentioned in this Book.

CLASSIS XX.

Linnen Rowlers, and the like.

THE Chest cannot be perfectly furnished, if *Linnen*, and the benefit received from it, in the application of Medicines, be wanting; for what profit Medicaments, though the most excellent, without *Linnen*? especially in great and dangerous fluxes.

xes of Blood, fractures and dislocations of the Bones, and in other accidents, where there is danger in delay; therefore you must have always in readiness *Rowlers*, both large, narrow, and middle-sized, *Linnen cloaths doubled*, which we call *Compressors*, or *Boulster-pledgets of Tow*.

Lint, which we use to apply Medicaments upon, and to keep the lips of the Wounds asunder, that they unite not again.

Tents also of *Lint*, of prepared *Spunges*, *Gentian roots*, and the like, which are to be of several sizes, some *big*, some *little*, &c. they ought to be prepared at leasure hours, that they may be ready when occasion requires.

He must have also *Spunges*, and *Oxe-bladders*, which are necessary to tie down Pots and Glassses, and also used in Amputation.

If a Sea or Land-Chirurgion be furnished with the above recited things, and have about him both faithful and expert Servants, he will be able to give assistance to a whole Fleet or
Army,

Army, and preserve infinites from death.

Candid Reader, I have been somewhat prolix in the setting down the Medicaments, and other things, by reason I designed to describe a most perfect, and every way compleat furnished Chest; but if thou art to furnish one at thy one particular charge, thou mayst select out of them the most useful and necessary Medicaments; but be sure likewise that it be so provided both with Medicaments and Instruments, that out of it, when occasion requires, thou mayst be able to assist and relieve the Sick; for what thou art imployed about here, is neither Beast, nor Pretious Stones, but Man, for whom the Son of God shed his pretious blood upon the Cross: therefore if any thing be neglected, it must be answered before the Almighty, to whom an account of all our Actions must be render'd.

FINIS.

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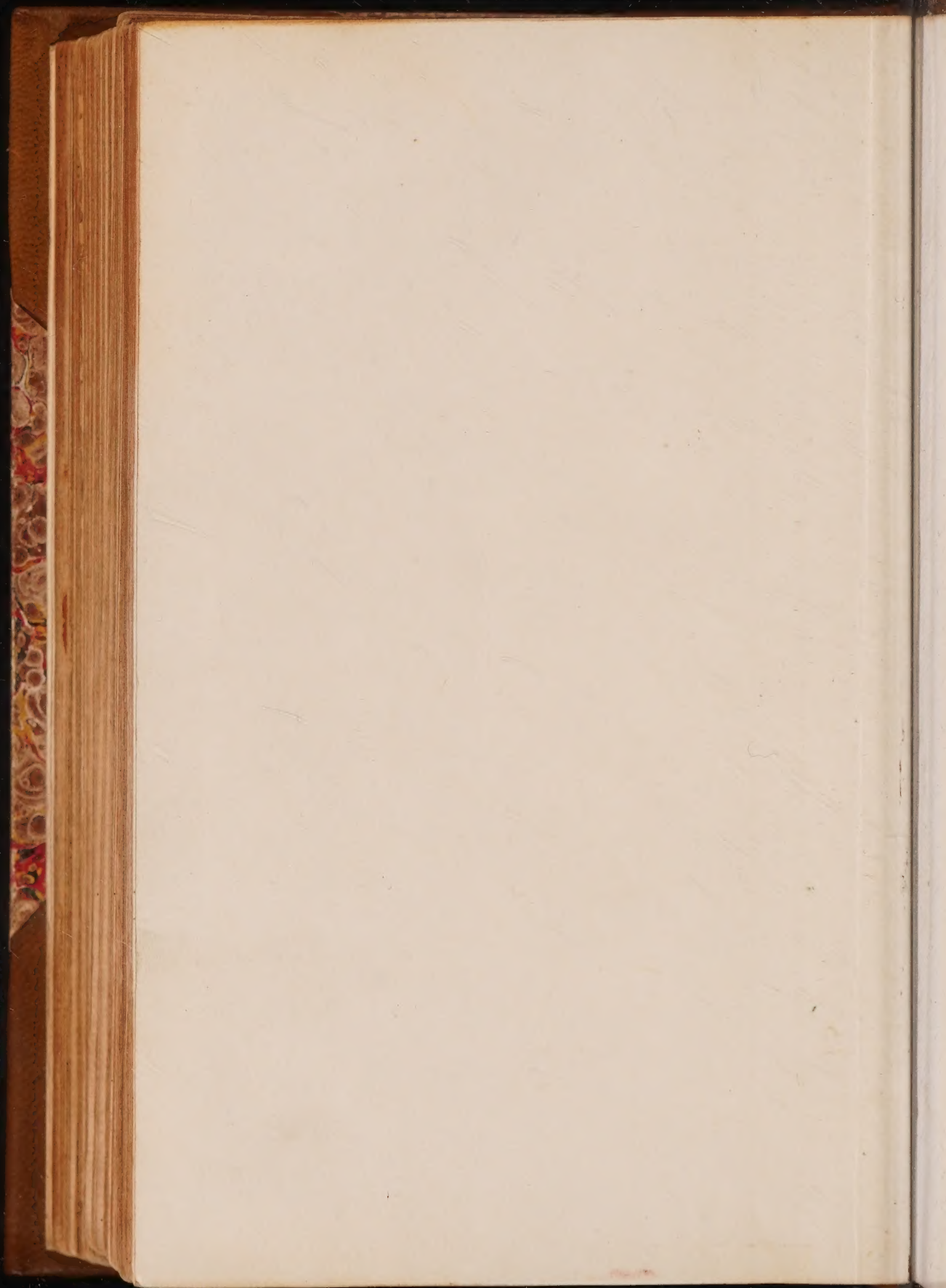
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